

The '275 Patent	Pantech Flex and Burst Mobile Phones
Claim 1	
<p>1. A system for remote patching of operating code located in a mobile unit, comprising:</p> <p>a manager host operable to initiate transmission through a wireless communication network of at least one discrete patch message defining at least one patch;</p>	<p>Pantech uses a system to deliver and install over-the-air operating code updates to its mobile phones, including its Flex and Burst phones.</p> <p>Pantech uses its servers as well as the servers of cellular network providers (such as AT&T) to initiate transmission of operating code updates through wireless communication networks, such as Wi-Fi or cellular networks.</p> <div data-bbox="951 602 1814 777" data-label="Image"> </div> <p>[Exemplary Source: http://www.att.com/esupport/article.jsp?sid=KB414410&cv=820#fbid=5lis8pVBknm]</p>
<p>a first mobile unit operable to receive the at least one discrete patch message, the first mobile unit further operable to create patched operating code by merging the at least one patch with current operating code located in the first mobile unit and to switch execution to the patched operating code; and</p>	<p>Pantech installs software on its mobile phones to facilitate the installation process of operating code updates. Pantech's mobile phones receive updates generated by Pantech's servers and the servers of cellular network providers. Using the software installed by Pantech, the mobile phones receive and install the updates.</p> <p>Pantech's mobile phones routinely check for updates and also receive notification of updated patches when they are available for download. Once downloaded, the Pantech phones execute the update by patching the current operating code of the phone with the code contained in the update. As described in detail below, the phone is inoperable during this process. The Pantech phone displays a confirmation message once the update is complete.</p>

The '275 Patent	Pantech Flex and Burst Mobile Phones
	<div data-bbox="953 269 1814 919"> <p>Update the Firmware for the Pantech Burst (P9070)</p> <p>Advisory:</p> <p>Update summary</p> <p>On 8/22/213, AT&T and Pantech released a software update for the Pantech Burst (P9070) currently running Android version 2.3 (Gingerbread). This software package updates provides device performance enhancements..</p> <p>The size of the update is 14 MB and will not count against your data bucket when downloaded over a mobile broadband connection.</p> <p>What to expect after the update</p> <p>Although there should be no impacts to settings or data, we recommend that you back up your media files to an SD card, PC, or using a favorite application (from the Play Store), prior to upgrading the software.</p> <p>How to update</p> <p>Customers will receive an alert and be prompted to download the update, or have the option to initiate the update manually. When prompted, you can postpone the update up to 3 times, and 4 hours per occurrence. After the update has been postponed for the maximum allowable time, your device will automatically download and install the update.</p> <ol style="list-style-type: none"> 1. From the home screen, press the Menu key, and then tap Settings. 2. Tap AT&T Software update > Check for updates. 3. The device will determine if new software is available, and begin downloading the software update. Once complete, the device will restart. 4. Please wait until your device reboots completely, and then select Done to finish. <p>How to verify the update</p> <ol style="list-style-type: none"> 1. From the home screen, press the Menu key, and then tap Settings. 2. Scroll to and tap About phone. The following information will be displayed: <ul style="list-style-type: none"> • Baseband Version: M9200B-SCAQCSZD-3.0.552116T • Kernel Version: 2.6.35.11-pref • Build#: GRJ90 </div>

The '275 Patent	Pantech Flex and Burst Mobile Phones
	<div data-bbox="953 269 1814 1192" style="border: 1px solid black; padding: 10px;"> <p>Update the Software for the Pantech Flex (P8010) using Easy Experience</p> <p>Instructions:</p> <p>Update summary</p> <p>Effective June 21, 2013, a software update for the Pantech Flex (P8010) will be available via firmware-over-the-air (FOTA) push to AT&T customers. Phones can be updated via Wi-Fi connection. The update will not count against the customer's data bucket.</p> <p>To determine the software version, tap Menu > Settings > Phone > About phone. If the Baseband version is not JYUS04012013, the device should be updated.</p> <p>Software update includes</p> <p>The 241MB software update includes the following updates:</p> <ul style="list-style-type: none"> • Android OS 4.1 (Jelly Bean) <ul style="list-style-type: none"> ◦ Expandable & Actionable Notifications allows to take action directly from notifications shade ◦ Google Now ◦ Optimized display performance ◦ Resizable widgets ◦ Other Improvements such as predictive keyboard with more accurate word completion, offline voice typing and user-installable keyboard maps • AT&T Drive Mode, Data Manager and Battery Manager have been added. <p>What to expect after the update</p> <p>There will be no impacts to settings or data.</p> <p>How to update</p> <p>Prior to the update, please ensure that the battery is fully charged, and that there is an active SIM card installed in the phone.</p> <ol style="list-style-type: none"> 1. When the software update notification is received, tap Continue. To postpone the install for up to 8 hours, tap Postpone. <ul style="list-style-type: none"> • To manually check for the update: <ol style="list-style-type: none"> 1. Tap Menu. 2. Tap Settings. 3. Tap Phone. 4. Tap About phone. 5. Tap AT&T software update. 6. Tap Check for updates. 2. The device will restart to install the update and will be unusable during this time. 3. Once complete, a confirmation will be displayed. Tap OK. <ul style="list-style-type: none"> • To verify the updated software version, go to Menu > Settings > Phone > About phone. The following information will be displayed: <ul style="list-style-type: none"> ◦ Baseband version: JYUS06032013 ◦ Kernal version: 3.4.0 ◦ Build number: JZ054K </div> <p>[Exemplary Sources: http://www.att.com/esupport/article.jsp?sid=KB414410&cv=820#fbid=5lis8pVBknm; http://www.att.com/esupport/article.jsp?sid=KB418856&cv=820#fbid=5lis8pVBknm]</p>

The '275 Patent	Pantech Flex and Burst Mobile Phones						
<p>a second mobile unit operable to receive the at least one discrete patch message, the second mobile unit further operable to create patched operating code by merging the at least one patch with current operating code located in the second mobile unit and to switch execution to the patched operating code; and</p>	<p>See the previous limitation.</p>						
<p>wherein the manager host is further operable to address the at least one discrete patch message such that the at least one discrete patch message is transmitted to the first mobile unit but not to the second mobile unit.</p>	<p>Pantech mobile phones allow users to check for updated software patches. The phones query Pantech's servers. Pantech's servers send update packages to devices still using the previous version of firmware, but do not send the same updates to devices using the current firmware.</p> <div data-bbox="951 797 1812 1248" data-label="Image"> <p>The screenshot shows the 'AT&T Software Update' screen. It includes the text 'Check and update your software without visiting the dealer.' followed by two numbered steps: '1. Tap [gear icon] > Settings > AT&T software update.' and '2. Select an option.' Below the steps is a table with two columns: 'Option' and 'Description'.</p> <table border="1"> <thead> <tr> <th>Option</th><th>Description</th></tr> </thead> <tbody> <tr> <td>Check for updates</td><td>Check for software updates.</td></tr> <tr> <td>Continue update</td><td>Resume a postponed software update.</td></tr> </tbody> </table> </div> <p>[Exemplary Sources: http://15e08fd01e18d5ee73d6-70c55b37e97641cc9ebdaf7330edb321.r49.cf2.rackcdn.com/120809_P8010(Flex)_M</p>	Option	Description	Check for updates	Check for software updates.	Continue update	Resume a postponed software update.
Option	Description						
Check for updates	Check for software updates.						
Continue update	Resume a postponed software update.						

The '275 Patent	Pantech Flex and Burst Mobile Phones
	anual_Final1.pdf; file:///C:/Users/DSD/Downloads/120809_P8010(Flex)_Manual_Final1.pdf]


The '658 Patent	Pantech Smart Phones
Claim 1	
<p>1. An apparatus for automatically selecting one of a plurality of communication paths, the apparatus comprising:</p> <p>a memory operable to store a plurality of ordered lists of communication paths, each ordered list associated with one of a plurality of communication attributes, each communication attribute representing a separate priority for communication; and</p>	<p>Pantech's smart phones automatically select communication paths on cellular and Wi-Fi networks.</p> <p>Pantech's smart phones contain memory allowing them to store ordered lists of communication paths on cellular and Wi-Fi networks. Each of these ordered lists is associated with a communication attribute (such as the type of network or the speed of the communication). Moreover, each communication attribute represents a separate priority for communication (e.g., "home" cellular networks are preferred to roaming).</p> <p>For example, the Pantech Flex is a mobile phone that contains memory operable to store ordered lists of communication paths.</p>

The '658 Patent

Pantech Smart Phones

Pantech Flex

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> **Announced:** 04 Sep 2012

> **Market status:** Released

> **Release date:** 16 Sep 2012

 **US CARRIER AVAILABILITY:**

AT&T - Discontinued


PhoneArena rating:

7.5 [Click to read the full review](#)

User rating:

10 [Based on 1 User reviews](#)

Pros

 High-resolution camera (8 megapixels)

DESIGN

[UNLOCK THIS CELLPHONE](#) [COMPARE](#)

Device type:	Smart phone
OS:	Android (4.1.2, 4.0)
Dimensions:	5.11 x 2.64 x 0.31 inches (129.9 x 67 x 7.95 mm)
Weight:	4.66 oz (132 g) the average is 4.6 oz (133 g)

DISPLAY



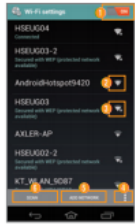





Physical size:	4.3 inches
Resolution:	540 x 960 pixels
Pixel density:	256 ppi
Technology:	Super AMOLED
Touchscreen:	Multi-touch
Features:	Proximity sensor

CAMERA

Camera:	8 megapixels
Flash:	LED
Features:	Auto focus, Geo tagging
Camcorder:	1920x1080 (1080p HD) (30 fps)
Features:	Video calling
Front-facing camera:	2 megapixels

HARDWARE

System chip:	Qualcomm Snapdragon S4 Plus MSM8960
Processor:	Dual core, 1500 MHz, Krait
Graphics processor:	Adreno 225
System memory:	1024 MB RAM

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	<p>Pantech's smart phones select one of the communication paths based on the type, speed, and/or cost of the communication. For example, the Flex chooses the appropriate path for the communication of data based on network availability and cost. The Flex will generally choose Wi-Fi networks in order to save on data transmission costs and increased speed. The Flex stores multiple Wi-Fi access points, allowing the unit to automatically connect to authenticated access points when available.</p> <div data-bbox="949 574 1812 1237"> <p style="text-align: right;">BASIC OPERATIONS</p> <p>Connecting to the Internet</p> <p>Connecting to a Wi-Fi Network</p> <p>When you activate Wi-Fi after turning on the phone for the first time or resetting the phone, the Wi-Fi settings screen appears.</p> <ol style="list-style-type: none"> 1. Drag the area at the top of the screen downward. 2. Tap  Wi-Fi in Quick Settings to turn on Wi-Fi. <ul style="list-style-type: none"> • Tap  Wi-Fi again to turn off Wi-Fi. 3. Select and tap a network in the Wi-Fi network list.  <table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Turn Wi-Fi on or off.</td> </tr> <tr> <td>2</td> <td>Unsecured network</td> </tr> <tr> <td>3</td> <td>Secured network</td> </tr> <tr> <td>4</td> <td>Access advanced settings and configure a WPS connection.</td> </tr> <tr> <td>5</td> <td>Add a Wi-Fi network.</td> </tr> <tr> <td>6</td> <td>Search for available Wi-Fi networks again.</td> </tr> </tbody> </table> <p><small>○ Note You must enter a password to connect to a secured Wi-Fi network.</small></p> <p>To Configure Wi-Fi Settings</p> <p>If you turn off Wi-Fi and then turn it on again, the phone automatically connects to the most recently-used network. To connect to another Wi-Fi network or configure Wi-Fi settings, drag the area at the top of the screen downward, and tap  Wi-Fi Settings in Detail Settings. You can also tap  > Settings > Wi-Fi.</p> <p>Connecting to a Mobile Network</p> <p>You will need a data plan to access a mobile network.</p> <ol style="list-style-type: none"> 1. Drag the area at the top of the screen downward. 2. Tap  Data in Quick Settings to access the mobile network. <ul style="list-style-type: none"> • Tap  Data to disconnect from mobile network. <p>To Configure Mobile Network Settings</p> <p>Tap  > Settings > More... > Mobile networks, and then check Data Services to enable data access over mobile networks.</p> </div> <p>When Wi-Fi is not available, Pantech's smart phones use the user's preferred cellular network throughout the country. If this network cannot be connected to, then the phone connects to secondary cellular networks, entering a Roaming state.</p>	No.	Description	1	Turn Wi-Fi on or off.	2	Unsecured network	3	Secured network	4	Access advanced settings and configure a WPS connection.	5	Add a Wi-Fi network.	6	Search for available Wi-Fi networks again.
No.	Description														
1	Turn Wi-Fi on or off.														
2	Unsecured network														
3	Secured network														
4	Access advanced settings and configure a WPS connection.														
5	Add a Wi-Fi network.														
6	Search for available Wi-Fi networks again.														

The '658 Patent**Pantech Smart Phones****10.3.4 EF_{PLMNsel} (PLMN selector)**

This EF contains the coding for n PLMNs, where n is at least eight. This information determined by the user/operator defines the preferred PLMNs of the user in priority order.

Identifier: '6F30'		Structure: transparent		Optional	
File size: 3n (n ≥ 8) bytes			Update activity: low		
Access Conditions:					
READ		CHV1			
UPDATE		CHV1			
INVALIDATE		ADM			
REHABILITATE		ADM			
Bytes		Description		M/O	Length
1 to 3		1 st PLMN (highest priority)		M	3 bytes
22 to 24		8 th PLMN		M	3 bytes
25 to 27		9 th PLMN		O	3 bytes
(3n-2) to 3n		nth PLMN (lowest priority)		O	3 bytes

Home networks are defined in the “HPLMN Selector” file, which identifies networks according to different access technologies in priority order (section 10.3.37 of 3GPP TS 11.11).

10.3.37 EF_{HPLMNwAcT} (HPLMN Selector with Access Technology)


The HPLMN Selector with access technology data field shall contain the HPLMN code, or codes together with the respective access technology in priority order (see TS 23.122 [51]).

A further EF, EF_{PLMNwAcT}, contains a further priority-ordered list of networks with associated network access technology attributes (section 10.3.35).

10.3.35 EF_{PLMNwAcT} (User controlled PLMN Selector with Access Technology)

This EF contains coding for n PLMNs, where n is at least eight. This information, determined by the user, defines the preferred PLMNs of the user in priority order. The EF also contains the Access Technologies for each PLMN in this list. (see TS 23.122 [51]).


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	<p>[Exemplary Sources: http://www.phonearena.com/phones/Pantech-Flex_id7413; http://15e08fd01e18d5ee73d670c55b37e97641cc9ebdaf7330edb321.r49.cf2.rackcdn.com/120809_P8010(Flex)_Manual_Final1.pdf; http://support.verizonwireless.com/support/devices/knowledge_base.html/71292/; http://www.gsmarena.com/pantech_flex_p8010-5008.php; http://www.etsi.org/deliver/etsi_ts/100900_100999/100977/08.14.00_60/ts_100977v081400p.pdf]</p>
<p>a processor operable to receive a request for communication, the request indicating a communication attribute, the processor further operable to automatically select a communication path from an ordered list associated with the indicated communication attribute.</p>	<p>Pantech's smart phones contain processors operable to receive communication requests from their users. For example, the Flex contains a microprocessor and antenna. The Flex microprocessor and antenna communicate with cellular and Wi-Fi networks after receiving communication requests from the user.</p> <p>The communication requests received by the microprocessors in Pantech's smart phones include the appropriate communication attributes based on the type of request. For example, the smart phones use cellular communication for voice calling and Wi-Fi for data downloads.</p> <p>Pantech's smart phones, based on the type of request and available paths, automatically select the most suitable communication path. The smart phone determines the appropriate communication path based on an ordered list of paths, using factors such preferred cellular networks and authenticated Wi-Fi networks.</p>

The '658 Patent	Pantech Smart Phones								
	<div data-bbox="953 269 1814 1114" style="border: 1px solid black; padding: 10px;"> <h3 style="margin: 0;">AT&T Smart Wi-Fi</h3> <p>AT&T Smart Wi-Fi provides an easy way to manage your access to Wi-Fi Hot Spots.</p> <ol style="list-style-type: none"> 1. Tap  > AT&T Smart-Wifi. ① Note The first time you open this application, you need to download and install the application from the Play Store. 2. Log in to Play Store with your Google account. 3. Configure the auto-connect Wi-Fi hotspot setting. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Option</th><th style="text-align: left;">Description</th></tr> </thead> <tbody> <tr> <td>My Spots</td><td>Only enable and connect to Wi-Fi near AT&T Wi-Fi Hot Spots and saved networks.</td></tr> <tr> <td>Popular</td><td>Only enable Wi-Fi near My Spots and Popular Hotspots.</td></tr> <tr> <td>Public</td><td>Enable Wi-Fi near My Spots, Popular Hotspots, and Public Hotspots.</td></tr> </tbody> </table> <ol style="list-style-type: none"> 4. Select and tap an available hot spot to connect to. </div> <p>Support for automatic selection of a cellular network is mandated in standard 3GPP TS 23.122 – see section 3.1. If cellular data is enabled in the Flex, the handset will seek to establish a data connection. The highest priority accessible network is automatically selected.</p>	Option	Description	My Spots	Only enable and connect to Wi-Fi near AT&T Wi-Fi Hot Spots and saved networks.	Popular	Only enable Wi-Fi near My Spots and Popular Hotspots.	Public	Enable Wi-Fi near My Spots, Popular Hotspots, and Public Hotspots.
Option	Description								
My Spots	Only enable and connect to Wi-Fi near AT&T Wi-Fi Hot Spots and saved networks.								
Popular	Only enable Wi-Fi near My Spots and Popular Hotspots.								
Public	Enable Wi-Fi near My Spots, Popular Hotspots, and Public Hotspots.								

The '658 Patent	Pantech Smart Phones
	<div data-bbox="953 266 1814 483" style="border: 1px solid black; padding: 10px;"> <p>3.1 PLMN selection and roaming</p> <p>The MS normally operates on its home PLMN (HPLMN) or equivalent home PLMN (EHPLMN). However a visited PLMN (VPLMN) may be selected, e.g., if the MS loses coverage. There are two modes for PLMN selection:</p> <ul style="list-style-type: none"> i) Automatic mode - This mode utilizes a list of PLMNs in priority order. The highest priority PLMN which is available and allowable is selected. ii) Manual mode - Here the MS indicates to the user which PLMNs are available. Only when the user makes a manual selection does the MS try to obtain normal service on the VPLMN. </div> <p>TS22.011 describes the operation of the Flex when registering onto a network (PLMN) for service. Section 3.2.2.1 specifically describes the use of the various ordered lists contained in the operator controlled PLMN list, the use controlled PLMN list and the Home PLMN list.</p>

The '658 Patent	Pantech Smart Phones
	<div data-bbox="953 269 1814 987" style="border: 1px solid black; padding: 10px;"> <p>3.2.2 Procedures</p> <p>3.2.2.1 General</p> <p>In the following procedures the UE selects and attempts registration on PLMNs.</p> <p>In this TS, the term "PLMN Selection" defines an UE based procedure, whereby candidate PLMNs are chosen, one at a time, for attempted registration.</p> <p>A User Controlled PLMN Selector data field exists on the USIM to allow the user to indicate a preference for network selection. It shall be possible for the user to update the User Controlled PLMN Selector data field, but it shall not be possible to update this data field over the radio interface, e.g. using SIM Application Toolkit.</p> <p>It shall be possible to have an Operator Controlled PLMN Selector list and a User Controlled PLMN Selector list stored on the SIM/USIM card. Both PLMN Selector lists may contain a list of preferred PLMNs in priority order. It shall be possible to have an associated Access Technology identifier e.g., E-UTRAN, UTRAN, or GERAN associated with each entry in the PLMN Selector lists.</p> <p style="text-align: center;"><i>ETSI</i></p> <hr/> <p>3GPP TS 22.011 version 11.3.0 Release 11 10 ETSI TS 122 011 V11.3.0 (2013-04)</p> <p>The UE shall utilise all the information stored in the USIM related to network selection, e.g. HPLMN, Operator controlled PLMN Selector list, User Controlled PLMN Selector list, Forbidden PLMN list.</p> <p>Note 1: A PLMN in a Selector list, including HPLMN, may have multiple occurrences, with different access technology identifiers.</p> </div> <p>In addition to the cellular functionality, the Flex has certified capability to access Wi-Fi networks complying with IEEE standards (802.11 a/b/g/n/ac). The particular communication path is selected from an ordered list according to the best available network connection.</p> <p>Additionally the Flex stores network identities and associated security attributes of Wi-Fi (802.11 a/b/g/n/ac) networks that have been accessed previously and automatically connects. In our understanding, the Pantech Flex will connect to the most recently used secured network if more than one is available or to the next most recent if the first is not available (and so on).</p>

The '658 Patent	Pantech Smart Phones				
	<div data-bbox="951 305 1812 469"> <table> <tr> <td>Wi-Fi:</td> <td>802.11 a, b, g, n</td> </tr> <tr> <td>Mobile hotspot:</td> <td>Yes</td> </tr> </table> </div> <p data-bbox="831 516 1932 740">[Exemplary Sources: http://www.phonearena.com/phones/Pantech-Flex_id7413; http://15e08fd01e18d5ee73d670c55b37e97641cc9ebdaf7330edb321.r49.cf2.rackcdn.com/120809_P8010(Flex)_Manual_Final1.pdf; http://www.qtc.jp/3GPP/Specs/23122-8c0.pdf; http://www.etsi.org/deliver/etsi_ts/122000_122099/122011/11.02.00_60/ts_122011v110200p.pdf]</p>	Wi-Fi:	802.11 a, b, g, n	Mobile hotspot:	Yes
Wi-Fi:	802.11 a, b, g, n				
Mobile hotspot:	Yes				

The '202 Patent	Pantech Smart Phones													
Claim 8														
<p>8. A mobile unit for communicating using a cellular telephone network, comprising:</p> <p>a communication device operable to receive a system identification number list from a host controller remotely disposed from the mobile unit;</p>	<p>Pantech’s smart phones, such as the Flex, communicate voice and data information using a cellular telephone network. The Pantech smart phones receive a system identification number list from a host controller remotely disposed from the mobile smart phone.</p> <div><p>Operating Frequency</p><ul style="list-style-type: none">▪ GSM/GPRS/EDGE Quad(850/900/1800/1900) MHz, UMTS/HSPA+ Tri(850/1900/2100) MHz, LTE Dual(700/AWS) MHz networks in North America, South America, Europe, Africa, and Asia-Pacific (where these networks are supported).▪ Automatic band switching</div> <div><div></div><div><p>For AT&T</p><table><tr><td rowspan="6">GENERAL</td><td>2G Network</td><td>GSM 850 / 900 / 1800 / 1900</td></tr><tr><td>3G Network</td><td>HSDPA 850 / 1900 / 2100</td></tr><tr><td>4G Network</td><td>LTE 700 MHz Class 17 / 1700 / 2100</td></tr><tr><td>SIM</td><td>Micro-SIM</td></tr><tr><td>Announced</td><td>2012, September</td></tr><tr><td>Status</td><td>Available. Released 2012, September</td></tr></table></div></div> <p>Pantech’s smart phones, such as the Flex, are communication devices that use the Global System for Mobile (GSM) cellular networks. The Pantech smart phones receive an identification number list referred to as an Elementary File (EF) from</p>	GENERAL	2G Network	GSM 850 / 900 / 1800 / 1900	3G Network	HSDPA 850 / 1900 / 2100	4G Network	LTE 700 MHz Class 17 / 1700 / 2100	SIM	Micro-SIM	Announced	2012, September	Status	Available. Released 2012, September
GENERAL	2G Network		GSM 850 / 900 / 1800 / 1900											
	3G Network		HSDPA 850 / 1900 / 2100											
	4G Network		LTE 700 MHz Class 17 / 1700 / 2100											
	SIM		Micro-SIM											
	Announced		2012, September											
	Status	Available. Released 2012, September												

The '202 Patent	Pantech Smart Phones
	<p>Pantech's servers with coding for preferred and prioritized Public Land Mobile Networks (PLMNs).</p> <p>Pantech Flex, for example, operates on 2G, 3G, and 4G cellular networks and therefore adheres to the 3GPP standards. The 3GPP standards mandate the storage and maintenance of lists of preferred mobile networks identified using a mobile network code (MNC).</p> <p>When roaming, preferred networks are identified in the "PLMN selector" file (section 10.3.4 of 3GPP TS11.11). Home networks are defined in the "HPLMN Selector" file, which identifies networks according to different access technologies in priority order (section 10.3.37 of 3GPP TS 11.11).</p> <div data-bbox="953 776 1814 829" style="border: 1px solid black; padding: 2px; margin: 10px auto; width: fit-content;"> Elementary File (EF): file containing access conditions and data and no other files. </div> <div data-bbox="953 873 1814 933" style="border: 1px solid black; padding: 2px; margin: 10px auto; width: fit-content;"> PLMN Public Land Mobile Network </div>

The '202 Patent**Pantech Smart Phones****10.3.4 EF_{PLMNsel} (PLMN selector)**

This EF contains the coding for n PLMNs, where n is at least eight. This information determined by the user/operator defines the preferred PLMNs of the user in priority order.

Identifier: '6F30'		Structure: transparent		Optional
File size: 3n (n ≥ 8) bytes		Update activity: low		
Access Conditions:				
READ		CHV1		
UPDATE		CHV1		
INVALIDATE		ADM		
REHABILITATE		ADM		
Bytes	Description		M/O	Length
1 - 3	1 st PLMN (highest priority)		M	3 bytes
22 - 24	8 th PLMN		M	3 bytes
25 - 27	9 th PLMN		O	3 bytes
(3n-2)-3n	nth PLMN (lowest priority)		O	3 bytes

- PLMN

Contents:

Mobile Country Code (MCC) followed by the Mobile Network Code (MNC).

10.3.37 EF_{HPLMNwAcT} (HPLMN Selector with Access Technology)

The HPLMN Selector with access technology data field shall contain the HPLMN code, or codes together with the respective access technology in priority order (see TS 23.122 [51]).

The same standard further mandates a “forbidden” network list. This contains a list of networks which the handset “shall not automatically attempt to access”.

3GPP TS 11.11 version 8.14.0 Release 1999

66

ETSI TS 100 977 V8.14.0 (2007-06)

10.3.16 EF_{FPLMN} (Forbidden PLMNs)

This EF contains the coding for four Forbidden PLMNs (FPLMN). It is read by the ME as part of the SIM initialization procedure and indicates PLMNs which the MS shall not automatically attempt to access.

The “Elementary Files” (HPLMN; PLMNsel; FPLMN) may be updated over-the-air via a SIM data download message, in the form of an SMS or other supported data

The '202 Patent	Pantech Smart Phones
	<p>bearer, referenced in Annex I of 3GPP TS 11.11 and defined in section 7 of 3GPP TS 11.14.</p> <div data-bbox="953 386 1814 652"> <p>3GPP TS 11.11 version 8.14.0 Release 1999 173 ETSI TS 100 977 V8.14.0 (2007-06)</p> <hr/> <p>Annex I (informative): EF changes via Data Download or SIM Toolkit applications</p> <p>This annex defines if changing the content of an EF by the network (e.g. by sending an SMS), or by SIM Toolkit Application (e.g. by using the SIM API), is advisable. Updating of certain EFs, "over the air" such as EF_{ACC} could result in unpredictable behaviour of the MS; these are marked "Caution" in the table below. Certain EFs are marked "No"; under no circumstances should "over the air" changes of these EFs be considered.</p> </div> <div data-bbox="953 695 1814 1279"> <p>3GPP TS 11.14 version 8.18.0 Release 1999 70 ETSI TS 101 267 V8.18.0 (2007-06)</p> <hr/> <p>7 Data download to SIM</p> <p>7.1 SMS-PP data download</p> <p>7.1.1 Procedure</p> <p>If the service "data download via SMS Point-to-point" is allocated and activated in the SIM Service Table (see TS 11.11 [20]), then the ME shall follow the procedure below:</p> <ul style="list-style-type: none"> - When the ME receives a Short Message with: protocol identifier = SIM data download, and data coding scheme = class 2 message, or when the ME receives a Short Message with: protocol identifier=ANSI-136 R-DATA (see 3G TS 23.040 [30]) and data coding scheme = class 2 message, and the ME chooses not to handle the message (e.g. MEs not supporting EGPRS over TTA/EIA-136 do not need to handle the message), then the ME shall pass the message transparently to the SIM using the ENVELOPE (SMS-PP DOWNLOAD) command as defined below. </div>

The '202 Patent	Pantech Smart Phones
	<p>[Exemplary Sources: http://www.etsi.org/deliver/etsi_ts/100900_100999/100977/08.14.00_60/ts_100977v081400p.pdf; http://www.gsmarena.com/pantech_flex_p8010-5008.php]</p>
<p>a memory coupled to the communication device and operable to store the system identification number list; and</p>	<p>Pantech's smart phones use computer memory, such as RAM and ROM, to store the EF file received by the phone. For example, the Flex has 1024 MB of RAM memory. Pantech's smart phones use the GSM protocol to arrange the EF files.</p> <p>The PLMN selector list and forbidden network list are stored on a SIM card.</p> <p>The SIM card incorporates a memory, organized in a directory structure at the lowest level of which the individual files are known as "Elementary Files" ("EF"s) and are stored according to 3GPP TS 11.11.</p> <div data-bbox="951 792 1812 1352" data-label="Diagram"> <p>6.1 General description</p> <p>Figure 3 shows the general structural relationships which may exist between files. The files are organized in a hierarchical structure and are of one of three types as defined below. These files may be either administrative or application specific. The operating system handles the access to the data stored in different files.</p> <p>Figure 3: Organization of memory</p> </div>

The '202 Patent	Pantech Smart Phones
	<p>[Exemplary Sources: http://15e08fd01e18d5ee73d6-70c55b37e97641cc9ebdaf7330edb321.r49.cf2.rackcdn.com/120809_P8010(Flex)_Manual_Final1.pdf; http://www.phonearena.com/phones/Pantech-Flex_id7413; http://www.etsi.org/deliver/etsi_ts/100900_100999/100977/08.14.00_60/ts_100977v081400p.pdf]</p>
<p>a processor coupled to the memory and operable to access the system identification number list to determine if the mobile unit is authorized to dial out in a particular cellular system service area providing service to the mobile unit.</p>	<p>Pantech's smart phones contain computer processors. The processors are connected to the phone's memory in order to retrieve data, such as the EF files. The processors read the EF files stored in memory to select an accessible cellular network which the phones are authorized to access.</p> <div data-bbox="953 680 1814 786" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>10.3.4 EF_{PLMNset} (PLMN selector)</p> <p>This EF contains the coding for n PLMNs, where n is at least eight. This information determined by the user/operator defines the preferred PLMNs of the user in priority order.</p> </div> <div data-bbox="953 831 1814 1133" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>2.4 Roaming in shared networks</p> <p>Mechanisms shall be specified to enable flexible allocation of visiting roamers among core network operators that have roaming agreements with the same roaming partners. The core network operators shall be able to pre-define their relative share of visiting roamers and distribute the visiting roamers that apply automatic network selection to different core networks connected to the radio access network accordingly.</p> <p>When network sharing exists between different operators and a user roams into the shared network it shall be possible for that user to register with a core network operator (among the network sharing partners) that the user's home operator has a roaming agreement with, even if the operator is not operating a radio access network in that area.</p> <p>The selection of a core network operator among those connected to the shared radio access network can either be manual (i.e. performed by the user after receiving a list of available core network operators) or automatic (i.e. performed by the UE according to user and operator preferred settings). For further information see subclause 3.2.</p> </div>

The '202 Patent	Pantech Smart Phones
	<div data-bbox="953 269 1814 964" style="border: 1px solid black; padding: 10px;"> <p>A) Automatic network selection mode</p> <p>The UE shall select and attempt registration on other PLMNs, if available and allowable, if the location area is not in the list of "forbidden LAs for roaming" and the tracking area is not in the list of "forbidden TAs for roaming" (see 3GPP TS 23.122 [3]), in the following order:</p> <ul style="list-style-type: none"> i) An EHPLMN if the EHPLMN list is present or the HPLMN (derived from the IMSI) if the EHPLMN list is not present for preferred access technologies in the order specified. In the case that there are multiple EHPLMNs present then the highest priority EHPLMN shall be selected. It shall be possible to configure a voice capable UE so that it shall not attempt registration on a PLMN if all cells identified as belonging to the PLMN do not support the corresponding voice service; ii) each entry in the "User Controlled PLMN Selector with Access Technology" data field in the SIM/USIM (in priority order). It shall be possible to configure a voice capable UE so that it shall not attempt registration on a PLMN if all cells identified as belonging to the PLMN do not support the corresponding voice service; iii) each entry in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM/USIM (in priority order). It shall be possible to configure a voice capable UE so that it shall not attempt registration on a PLMN if all cells identified as belonging to the PLMN do not support the corresponding voice service; iv) other PLMN/access technology combinations with sufficient received signal quality (see 3GPP TS 23.122 [3]) in random order. It shall be possible to configure a voice capable UE so that it shall not attempt registration on a PLMN if all cells identified as belonging to the PLMN do not support the corresponding voice service; v) all other PLMN/access technology combinations in order of decreasing signal quality. It shall be possible to configure a voice capable UE so that it shall not attempt registration on a PLMN if all cells identified as belonging to the PLMN do not support the corresponding voice service. <p>In the case of a UE operating in UE operation mode A or B, an allowable PLMN is one which is not in the "Forbidden PLMN" data field in the SIM/USIM. This data field may be extended in the ME memory. (see subclause 3.2.2.4). In the case of a UE operating in UE operation mode C, an allowable PLMN is one which is not in the "Forbidden PLMN" data field in the SIM/USIM or in the list of "forbidden PLMNs for GPRS service" in the ME.</p> <p>If successful registration is achieved, the UE shall indicate the selected PLMN.</p> </div> <p>The PLMN list defined in section 10.3.4 of 3GPP TS 11.11 "contains the coding for...at least eight (networks). This information determined by the user/operator defines the preferred PLMNs of the user in priority order."</p> <p>Automatic network selection is mandated in standard 3GPP TS 23.122 – section 3.1. If automatic mode is in use, the handset attaches to a suitable cell within the selected PLMN providing service to the Pantech Flex, as described in section 2 of TS 23.122.</p>

The '202 Patent	Pantech Smart Phones
	<div data-bbox="953 269 1814 483"> <p>3.1 PLMN selection and roaming</p> <p>The MS normally operates on its home PLMN (HPLMN) or equivalent home PLMN (EHPLMN). However a visited PLMN (VPLMN) may be selected, e.g., if the MS loses coverage. There are two modes for PLMN selection:</p> <ul style="list-style-type: none"> i) Automatic mode - This mode utilizes a list of PLMNs in priority order. The highest priority PLMN which is available and allowable is selected. ii) Manual mode - Here the MS indicates to the user which PLMNs are available. Only when the user makes a manual selection does the MS try to obtain normal service on the VPLMN. </div> <div data-bbox="953 526 1814 740"> <p>2 General description of idle mode</p> <p>When an MS is switched on, it attempts to make contact with a public land mobile network (PLMN). The particular PLMN to be contacted may be selected either automatically or manually.</p> <p>The MS looks for a suitable cell of the chosen PLMN and chooses that cell to provide available services, and tunes to its control channel. This choosing is known as "camping on the cell". The MS will then register its presence in the registration area of the chosen cell if necessary, by means of a location registration (LR), GPRS attach or IMSI attach procedure.</p> </div> <p>TS22.011 describes the operation of the Pantech Flex handset when registering onto a network (PLMN) for service. Section 3.2.2.1 specifically describes the use of the various ordered lists contained in the operator controlled PLMN list, the use controlled PLMN list and the Home PLMN list.</p>

The '202 Patent	Pantech Smart Phones
	<div data-bbox="953 269 1814 987" style="border: 1px solid black; padding: 10px;"> <p>3.2.2 Procedures</p> <p>3.2.2.1 General</p> <p>In the following procedures the UE selects and attempts registration on PLMNs.</p> <p>In this TS, the term "PLMN Selection" defines an UE based procedure, whereby candidate PLMNs are chosen, one at a time, for attempted registration.</p> <p>A User Controlled PLMN Selector data field exists on the USIM to allow the user to indicate a preference for network selection. It shall be possible for the user to update the User Controlled PLMN Selector data field, but it shall not be possible to update this data field over the radio interface, e.g. using SIM Application Toolkit.</p> <p>It shall be possible to have an Operator Controlled PLMN Selector list and a User Controlled PLMN Selector list stored on the SIM/USIM card. Both PLMN Selector lists may contain a list of preferred PLMNs in priority order. It shall be possible to have an associated Access Technology identifier e.g., E-UTRAN, UTRAN, or GERAN associated with each entry in the PLMN Selector lists.</p> <p style="text-align: center;"><i>ETSI</i></p> <hr/> <p>3GPP TS 22.011 version 11.3.0 Release 11 10 ETSI TS 122 011 V11.3.0 (2013-04)</p> <p>The UE shall utilise all the information stored in the USIM related to network selection, e.g. HPLMN, Operator controlled PLMN Selector list, User Controlled PLMN Selector list, Forbidden PLMN list.</p> <p>Note 1: A PLMN in a Selector list, including HPLMN, may have multiple occurrences, with different access technology identifiers.</p> </div> <p>[Exemplary Sources: http://www.phonearena.com/phones/Pantech-Flex_id7413; http://www.etsi.org/deliver/etsi_ts/100900_100999/100977/08.14.00_60/ts_100977v081400p.pdf; http://www.gtc.jp/3GPP/Specs/23122-8c0.pdf; http://www.etsi.org/deliver/etsi_ts/122000_122099/122011/11.02.00_60/ts_122011v110200p.pdf]</p>

The '657 Patent	Pantech Smart Phones
Claim 41	
<p>41. A system for communicating a message to a messaging unit using a cellular telephone network, comprising:</p>	<p>Pantech uses servers and cellular switching centers for communicating messages to their smart phones using cellular telephone networks. After generating software updates, Pantech uses servers to deliver and install the update messages for its mobile phones over cellular networks operated by each phone's cellular provider, such as AT&T.</p> <p>Pantech's website describes some of these software messages:</p> <div data-bbox="951 678 1812 857" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Update the Firmware for the Pantech Burst (P9070)</p> <p>Advisory: Update summary</p> <p>On 8/22/213, AT&T and Pantech released a software update for the Pantech Burst (P9070) currently running Android version 2.3 (Gingerbread). This software package updates provides device performance enhancements..</p> </div> <p>[Exemplary Source: http://www.att.com/esupport/article.jsp?sid=KB414410&cv=820#fbid=5lis8pVBknm]</p>
<p>a messaging unit;</p>	<p>Pantech's smart phones, such as the Flex, are messaging units. Pantech's smart phones connect to wireless cellular networks with radio protocols for data communications, such as GSM/GPRS/EDGE.</p>

The '657 Patent	Pantech Smart Phones
	<div data-bbox="953 269 1814 578" style="border: 1px solid black; padding: 10px;"> <p>Operating Frequency</p> <ul style="list-style-type: none"> • GSM/GPRS/EDGE Quad(850/900/1800/1900) MHz, UMTS/HSPA+ Tri(850/1900/2100) MHz, LTE Dual(700/AWS) MHz networks in North America, South America, Europe, Africa, and Asia-Pacific (where these networks are supported). • Automatic band switching </div> <p>[Exemplary Source: http://15e08fd01e18d5ee73d6-70c55b37e97641cc9ebdaf7330edb321.r49.cf2.rackcdn.com/120809_P8010(Flex)_Manual_Final1.pdf]</p>
a serving mobile switching center providing service to the messaging unit, wherein the serving mobile switching center comprises a portion of the cellular telephone network;	Pantech uses mobile switching centers owned and operated by cellular network providers (such as AT&T) to communicate with their smart phones. Pantech uses the GPRS protocol to facilitate transmittal of its software messages.

The '657 Patent	Pantech Smart Phones
	<p>5.4 Logical Architecture</p> <p><u>GPRS is logically implemented on the GSM structure through the addition of two network nodes, the Serving GPRS Support Node and the Gateway GPRS Support Node. It is necessary to name a number of new interfaces. No inference should be drawn about the physical configuration on an interface from Figure 2.</u></p> <p>Figure 2: Overview of the GPRS Logical Architecture</p> <p>[Exemplary Source: http://www.etsi.org/deliver/etsi_ts/101300_101399/101344/07.09.00_60/ts_101344v070900p.pdf]</p>
<p>a network central controller coupled to the serving mobile switching center, the network central controller having a first database that identifies the serving mobile switching center providing service to the messaging unit; and,</p>	<p>Pantech uses the network central controllers (NCCs) owned and operated by cellular network providers (such as AT&T) to communicate with their smart phones. The NCCs contain databases identifying the mobile switching center providing service to Pantech's smart phones. The cellular network providers use these databases to route messages to and from Pantech's smart phones.</p>

The '657 Patent

Pantech Smart Phones

5.4 Logical Architecture

GPRS is logically implemented on the GSM structure through the addition of two network nodes, the Serving GPRS Support Node and the Gateway GPRS Support Node. It is necessary to name a number of new interfaces. No inference should be drawn about the physical configuration on an interface from Figure 2.

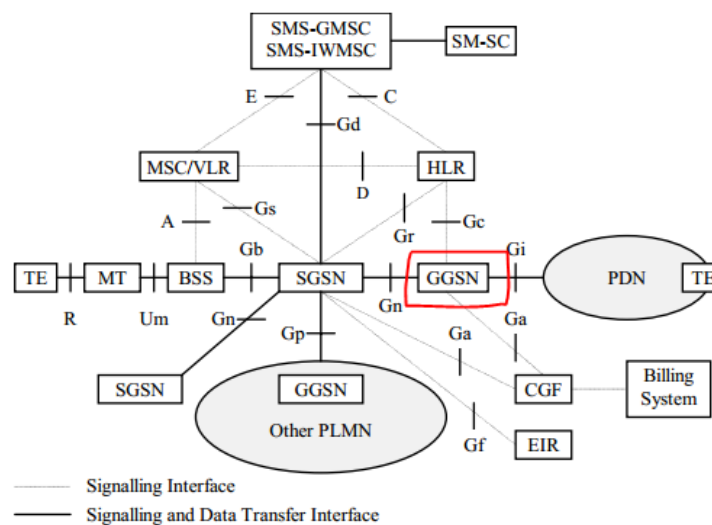


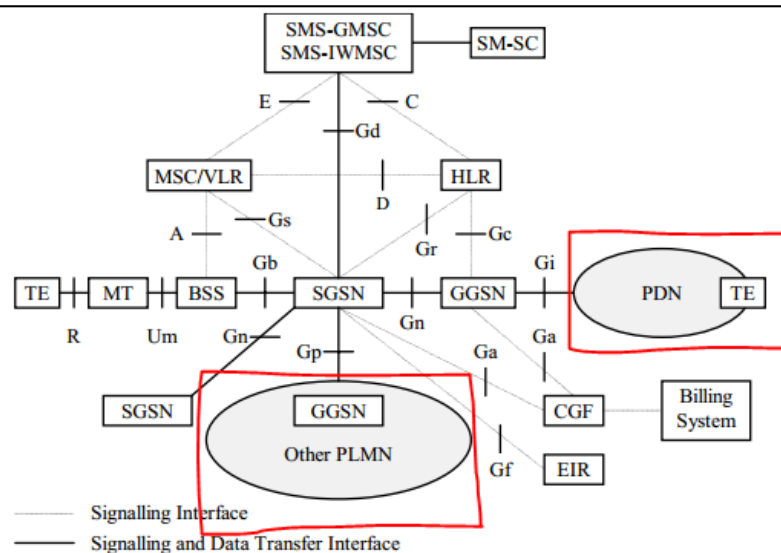
Figure 2: Overview of the GPRS Logical Architecture

The Gateway GPRS Support Node (GGSN) is the node that is accessed by the packet data network due to evaluation of the PDP address. It contains routing information for attached GPRS users. The routing information is used to tunnel N-PDUs to the MS's current point of attachment, i.e., the Serving GPRS Support Node. The GGSN may request location information from the HLR via the optional Gc interface. The GGSN is the first point of PDN interconnection with a GSM PLMN supporting GPRS (i.e., the Gi reference point is supported by the GGSN).




[Exemplary Source: http://www.etsi.org/deliver/etsi_ts/101300_101399/101344/07.09.00_60/ts_101344v070900p.pdf]




The '657 Patent	Pantech Smart Phones
<p>a device external to the cellular telephone network and coupled to the network central controller by a communication network, wherein the device generates a message for delivery to the messaging unit using the network central controller and the serving mobile switching center of the cellular telephone network and wherein the communication network comprises a global computer network.</p>	<p>Pantech uses servers to generate and send messages to its smart phones. The servers are external to the cellular telephone network and connected to the cellular providers' NCCs over the Internet or another packet-switched network. The servers generate software update messages for delivery to the smart phones using the NCCs and the mobile switching centers of the cellular network providers.</p> <div data-bbox="951 500 1812 1149" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Update the Firmware for the Pantech Burst (P9070)</p> <p>Advisory:</p> <p>Update summary On 8/22/2013, AT&T and Pantech released a software update for the Pantech Burst (P9070) currently running Android version 2.3 (Gingerbread). This software package updates provides device performance enhancements..</p> <p>The size of the update is 14 MB and will not count against your data bucket when downloaded over a mobile broadband connection.</p> <p>What to expect after the update Although there should be no impacts to settings or data, we recommend that you back up your media files to an SD card, PC, or using a favorite application (from the Play Store), prior to upgrading the software.</p> <p>How to update Customers will receive an alert and be prompted to download the update, or have the option to initiate the update manually. When prompted, you can postpone the update up to 3 times, and 4 hours per occurrence. After the update has been postponed for the maximum allowable time, your device will automatically download and install the update.</p> <ol style="list-style-type: none"> 1. From the home screen, press the Menu key, and then tap Settings. 2. Tap AT&T Software update > Check for updates. 3. The device will determine if new software is available, and begin downloading the software update. Once complete, the device will restart. 4. Please wait until your device reboots completely, and then select Done to finish. <p>How to verify the update</p> <ol style="list-style-type: none"> 1. From the home screen, press the Menu key, and then tap Settings. 2. Scroll to and tap About phone. The following information will be displayed: <ul style="list-style-type: none"> • Baseband Version: M9200B-SCAQCSD-3.0.552116T • Kernel Version: 2.6.35.11-pref • Build#: GRJ90 </div>

The '657 Patent	Pantech Smart Phones
	<div data-bbox="953 269 1814 1192" style="border: 1px solid black; padding: 10px;"> <h3>Update the Software for the Pantech Flex (P8010) using Easy Experience</h3> <p>Instructions:</p> <p>Update summary</p> <p>Effective June 21, 2013, a software update for the Pantech Flex (P8010) will be available via firmware-over-the-air (FOTA) push to AT&T customers. Phones can be updated via Wi-Fi connection. The update will not count against the customer's data bucket.</p> <p>To determine the software version, tap Menu > Settings > Phone > About phone. If the Baseband version is not JYUS04012013, the device should be updated.</p> <p>Software update includes</p> <p>The 241MB software update includes the following updates:</p> <ul style="list-style-type: none"> • Android OS 4.1 (Jelly Bean) <ul style="list-style-type: none"> ◦ Expandable & Actionable Notifications allows to take action directly from notifications shade ◦ Google Now ◦ Optimized display performance ◦ Resizable widgets ◦ Other Improvements such as predictive keyboard with more accurate word completion, offline voice typing and user-installable keyboard maps • AT&T Drive Mode, Data Manager and Battery Manager have been added. <p>What to expect after the update</p> <p>There will be no impacts to settings or data.</p> <p>How to update</p> <p>Prior to the update, please ensure that the battery is fully charged, and that there is an active SIM card installed in the phone.</p> <ol style="list-style-type: none"> 1. When the software update notification is received, tap Continue. To postpone the install for up to 8 hours, tap Postpone. <ul style="list-style-type: none"> • To manually check for the update: <ol style="list-style-type: none"> 1. Tap Menu. 2. Tap Settings. 3. Tap Phone. 4. Tap About phone. 5. Tap AT&T software update. 6. Tap Check for updates. 2. The device will restart to install the update and will be unusable during this time. 3. Once complete, a confirmation will be displayed. Tap OK. <ul style="list-style-type: none"> • To verify the updated software version, go to Menu > Settings > Phone > About phone. The following information will be displayed: <ul style="list-style-type: none"> ◦ Baseband version: JYUS06032013 ◦ Kernal version: 3.4.0 ◦ Build number: JZ054K </div>

The '657 Patent**Pantech Smart Phones****Figure 2: Overview of the GPRS Logical Architecture**

Every intra-PLMN backbone network is a private IP network intended for GPRS data and GPRS signalling only. A private IP network is an IP network to which some access control mechanism is applied in order to achieve a required level of security. Two intra-PLMN backbone networks are connected via the Gp interface using Border Gateways (BGs) and an inter-PLMN backbone network. The inter-PLMN backbone network is selected by a roaming agreement that includes the BG security functionality. The BG is not defined within the scope of GPRS. The inter-PLMN backbone can be a Packet Data Network, e.g., the public Internet or a leased line.

The '657 Patent	Pantech Smart Phones
	<div data-bbox="953 269 1814 748"> <p>Connecting to a Mobile Network</p> <p>You will need a data plan to access a mobile network.</p> <ol style="list-style-type: none"> 1. Drag the area at the top of the screen downward. 2. Tap  Data in Quick Settings to access the mobile network. <ul style="list-style-type: none"> • Tap  Data to disconnect from mobile network. <p>To Configure Mobile Network Settings</p> <p>Tap  > Settings > More... > Mobile networks, and then check Data Services to enable data access over mobile networks.</p> </div> <p>[Exemplary Sources: http://15e08fd01e18d5ee73d6-70c55b37e97641cc9ebdaf7330edb321.r49.cf2.rackcdn.com/120809_P8010(Flex)_Manual_Final1.pdf; http://www.etsi.org/deliver/etsi_ts/101300_101399/101344/07.09.00_60/ts_101344v070900p.pdf; http://www.att.com/esupport/article.jsp?sid=KB414410&cv=820#fbid=5lis8pVBknm; http://www.att.com/esupport/article.jsp?sid=KB418856&cv=820#fbid=5lis8pVBknm]</p>

The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911														
Claim 11															
<p>11. A method for data messaging by issuing a feature request, comprising:</p> <p>generating information on a mobile item using a sensor;</p>	<p>Pantech contributes to the infringement of the '455 patent by AT&T, Verizon and U.S. Cellular through their implementation of Enhanced 911 (E-911). Pantech's smart phones constitute a material part of the inventions claimed in the '455 patent and have no substantial noninfringing uses as part of the E-911 service.</p> <p>AT&T, Verizon and U.S. Cellular perform a method of data messaging for their E-911 services by issuing feature requests. Pantech's phones generate the feature requests, which contain codes indicating an emergency and include data representing position information.</p> <p>Pantech's phones generate position information using GPS receivers. A GPS receiver is a sensor.</p> <div data-bbox="951 873 1814 1321" data-label="Table"> <table> <tr> <th colspan="2">TECHNOLOGY</th></tr> <tr> <td>GSM:</td><td>850, 900, 1800, 1900 MHz</td></tr> <tr> <td>UMTS:</td><td>850, 1900, 2100 MHz</td></tr> <tr> <td>FDD LTE:</td><td>700 (band 17), 1700/2100 (band 4) MHz</td></tr> <tr> <td>Data:</td><td> LTE, HSPA (unspecified), UMTS, EDGE, GPRS</td></tr> <tr> <td>Positioning:</td><td>A-GPS</td></tr> <tr> <td>Navigation:</td><td>Turn-by-turn navigation</td></tr> </table> </div>	TECHNOLOGY		GSM:	850, 900, 1800, 1900 MHz	UMTS:	850, 1900, 2100 MHz	FDD LTE:	700 (band 17), 1700/2100 (band 4) MHz	Data:	 LTE, HSPA (unspecified), UMTS, EDGE, GPRS	Positioning:	A-GPS	Navigation:	Turn-by-turn navigation
TECHNOLOGY															
GSM:	850, 900, 1800, 1900 MHz														
UMTS:	850, 1900, 2100 MHz														
FDD LTE:	700 (band 17), 1700/2100 (band 4) MHz														
Data:	 LTE, HSPA (unspecified), UMTS, EDGE, GPRS														
Positioning:	A-GPS														
Navigation:	Turn-by-turn navigation														

The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911																		
	<p>The Pantech Flex handset includes Global Positioning System (GPS) receivers in order to implement Assisted GPS (A-GPS) – this is used to implement Location Based Services (LBS), including for example by AT&T in its Enhanced 911 (E-911) Solution, mandated by the FCC.</p> <p>The Pantech Flex handset supports 3G operation and is thus compliant with the 3GPP standards defining the associated access network (UTRAN). Description of location-based functions of the handset are defined, inter alia, in 3GPP TS 25.305.</p> <div><div>PANTECH</div><div><div>For AT&T</div><table><tr><td>GENERAL</td><td>2G Network</td><td>GSM 850 / 900 / 1800 / 1900</td></tr><tr><td></td><td>3G Network</td><td>HSDPA 850 / 1900 / 2100</td></tr><tr><td></td><td>4G Network</td><td>LTE 700 MHz Class 17 / 1700 / 2100</td></tr><tr><td></td><td>SIM</td><td>Micro-SIM</td></tr><tr><td></td><td>Announced</td><td>2012, September</td></tr><tr><td></td><td>Status</td><td>Available. Released 2012, September</td></tr></table></div></div> <p>[Exemplary Source: http://www.phonearena.com/phones/Pantech-Flex_id7413; http://www.gsmarena.com/pantech_flex_p8010-5008.php]</p>	GENERAL	2G Network	GSM 850 / 900 / 1800 / 1900		3G Network	HSDPA 850 / 1900 / 2100		4G Network	LTE 700 MHz Class 17 / 1700 / 2100		SIM	Micro-SIM		Announced	2012, September		Status	Available. Released 2012, September
GENERAL	2G Network	GSM 850 / 900 / 1800 / 1900																	
	3G Network	HSDPA 850 / 1900 / 2100																	
	4G Network	LTE 700 MHz Class 17 / 1700 / 2100																	
	SIM	Micro-SIM																	
	Announced	2012, September																	
	Status	Available. Released 2012, September																	
generating a feature request having a feature request identification code and data digits that represent information generated by the sensor;	<p>AT&T, Verizon and U.S. Cellular use the E-911 standard for wireless enhanced Emergency Calls. In order to comply with that standard, during a 911-emergency event, AT&T, Verizon and U.S. Cellular use Pantech's phones to generate feature requests with codes indicating the emergency and include data representing position information, such as GPS coordinates.</p> <p>Table 10.2 of TS25.305 summarizes the two alternative types of request (identified as UE-assisted and UE-based) and associated data digits arising from the GPS sensor that are sent to the cellular network.</p>																		

The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911																																				
	<p>Pantech's handsets send data identified as, and corresponding to , either:</p> <ul style="list-style-type: none">- position and velocity estimates if available in full UE-based operation; or- satellite, chip, and other data in UE-Assisted operation. <div><p>The information that may be signalled from UE to the network is listed in table 10.2.</p><p>Table 10.2: Information that may be transferred from UE to the network</p><table><tr><th>Information</th><th>UE-assisted</th><th>UE-based</th></tr><tr><td>reference time for GPS (T_{UE-GPS}) (specified in [15] and [16])</td><td>Yes</td><td>Yes</td></tr><tr><td>serving cell information</td><td>No</td><td>Yes</td></tr><tr><td>Latitude/Longitude/Altitude/Error ellipse</td><td>No</td><td>Yes</td></tr><tr><td>velocity estimate in the UE</td><td>No</td><td>Yes</td></tr><tr><td>satellite ID for which measurement data is valid</td><td>Yes</td><td>No</td></tr><tr><td>Whole/Fractional chips for information about the code-phase measurement</td><td>Yes</td><td>No</td></tr><tr><td>C/N_0 of the received signal from the particular satellite used in the measurements</td><td>Yes</td><td>No</td></tr><tr><td>doppler frequency measured by the UE for the particular satellite</td><td>Yes</td><td>No</td></tr><tr><td>pseudorange RMS error</td><td>Yes</td><td>No</td></tr><tr><td>multipath indicator</td><td>Yes</td><td>No</td></tr><tr><td>number of Pseudoranges</td><td>Yes</td><td>No</td></tr></table></div> <p>For example, the FCC E911 phase II mandate J-STD-036-B requires position data to be provided from a user equipment when placing an emergency call (section 1.2 and section 4.1).</p> <p>Although initially developed for ANSI-41 systems, this functionality is also mandated in GSM / UMTS and LTE systems. The IS-801 message is replaced in these instances with the 3GPP TS 25.305 message.</p> <div><p>1.2 Scope</p><p>This Standard provides a solution for the handling of Wireless Enhanced Emergency Calls for the FCC E911 Phase II mandate.</p></div>	Information	UE-assisted	UE-based	reference time for GPS (T_{UE-GPS}) (specified in [15] and [16])	Yes	Yes	serving cell information	No	Yes	Latitude/Longitude/Altitude/Error ellipse	No	Yes	velocity estimate in the UE	No	Yes	satellite ID for which measurement data is valid	Yes	No	Whole/Fractional chips for information about the code-phase measurement	Yes	No	C/ N_0 of the received signal from the particular satellite used in the measurements	Yes	No	doppler frequency measured by the UE for the particular satellite	Yes	No	pseudorange RMS error	Yes	No	multipath indicator	Yes	No	number of Pseudoranges	Yes	No
Information	UE-assisted	UE-based																																			
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satellite ID for which measurement data is valid	Yes	No																																			
Whole/Fractional chips for information about the code-phase measurement	Yes	No																																			
C/ N_0 of the received signal from the particular satellite used in the measurements	Yes	No																																			
doppler frequency measured by the UE for the particular satellite	Yes	No																																			
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multipath indicator	Yes	No																																			
number of Pseudoranges	Yes	No																																			

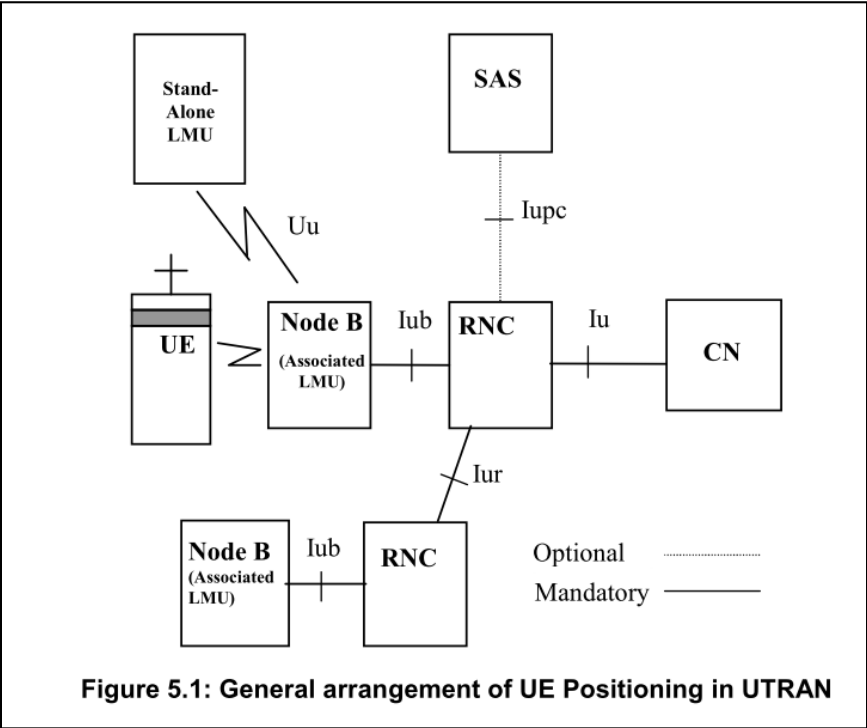
The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911
	<div data-bbox="953 310 1814 594"> <p>4 Mobile Initiated Positioning</p> <p>4.1 MS Originated Position Determination for Emergency Services Call (Successful CAS Push - E₅/E₃ Interfaces)</p> <p>This scenario illustrates MS originated position determination for an emergency services call. When the Serving System indicates that this is supported, the MS initiates an <i>IS-801</i> data burst to obtain position related information from the PDE when the MS is assigned to a traffic channel. Communication between the Serving MSC and the MPC-selected PDE takes place over the E₅/E₃ interfaces.</p> </div> <div data-bbox="953 638 1814 737"> <p>3.2.1.1 Overview</p> <p>The <i>Position Determination Data Message</i> sent by the mobile station is comprised of request elements and response elements, as specified below.</p> </div> <div data-bbox="953 781 1814 1053"> <p>Response elements sent by mobile station:</p> <ul style="list-style-type: none"> • Reject • Provide MS Information • Provide Autonomous Measurement Weighting Factors • Provide Pseudorange Measurement </div>

The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911																				
	<div data-bbox="953 269 1814 732"> <p>Table 3.2.4-3. Response Element Type</p> <table> <tr> <th data-bbox="989 318 1545 380">Description</th><th data-bbox="1545 318 1751 380">RESP_TYPE (binary)</th></tr> <tr> <td data-bbox="989 380 1545 418">Reject</td><td data-bbox="1545 380 1751 418">'0000'</td></tr> <tr> <td data-bbox="989 418 1545 457">Provide MS Information</td><td data-bbox="1545 418 1751 457">'0010'</td></tr> <tr> <td data-bbox="989 457 1545 496">Provide Autonomous Measurement Weighting Factors</td><td data-bbox="1545 457 1751 496">'0011'</td></tr> <tr> <td data-bbox="989 496 1545 535">Provide Pseudorange Measurement</td><td data-bbox="1545 496 1751 535">'0100'</td></tr> <tr> <td data-bbox="989 535 1545 574">Provide Pilot Phase Measurement</td><td data-bbox="1545 535 1751 574">'0101'</td></tr> <tr> <td data-bbox="989 574 1545 613">Provide Location Response</td><td data-bbox="1545 574 1751 613">'0001'</td></tr> <tr> <td data-bbox="989 613 1545 652">Provide Time Offset Measurement</td><td data-bbox="1545 613 1751 652">'0110'</td></tr> <tr> <td data-bbox="989 652 1545 691">Provide Cancellation Acknowledgement</td><td data-bbox="1545 652 1751 691">'0111'</td></tr> <tr> <td colspan="2" data-bbox="989 691 1751 711">All other RESP_TYPE values are reserved.</td></tr> </table> </div> <div data-bbox="953 777 1814 862"> <p>3.2.4.2 Response Element Parameters Record</p> </div>	Description	RESP_TYPE (binary)	Reject	'0000'	Provide MS Information	'0010'	Provide Autonomous Measurement Weighting Factors	'0011'	Provide Pseudorange Measurement	'0100'	Provide Pilot Phase Measurement	'0101'	Provide Location Response	'0001'	Provide Time Offset Measurement	'0110'	Provide Cancellation Acknowledgement	'0111'	All other RESP_TYPE values are reserved.	
Description	RESP_TYPE (binary)																				
Reject	'0000'																				
Provide MS Information	'0010'																				
Provide Autonomous Measurement Weighting Factors	'0011'																				
Provide Pseudorange Measurement	'0100'																				
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Provide Location Response	'0001'																				
Provide Time Offset Measurement	'0110'																				
Provide Cancellation Acknowledgement	'0111'																				
All other RESP_TYPE values are reserved.																					

The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911																																		
	<p data-bbox="955 284 1787 334">If RESP_TYPE is equal to '0100' (Provide Pseudorange Measurement), RESP_PAR_RECORD shall include the following variable length record:</p> <table data-bbox="1213 368 1782 678"> <thead> <tr> <th>Field</th><th>Length (bits)</th></tr> </thead> <tbody> <tr> <td>PART_NUM</td><td>3</td></tr> <tr> <td>TOTAL_PARTS</td><td>3</td></tr> <tr> <td>NUM_PS_RANGES_P</td><td>6</td></tr> <tr> <td>TIME_REF</td><td>24</td></tr> <tr> <td>TIME_REF_SRC</td><td>2</td></tr> <tr> <td>OFFSET_INCL</td><td>1</td></tr> <tr> <td>REF_PN</td><td>0 or 9</td></tr> <tr> <td>MOB_SYS_T_OFFSET</td><td>0 or 14</td></tr> </tbody> </table> <p data-bbox="1220 690 1776 735">The mobile station shall include NUM_PS_RANGES_P occurrences of the following fields:</p> <table data-bbox="1213 738 1782 979"> <tbody> <tr> <td>SV_PRN_NUM</td><td>6</td></tr> <tr> <td>SV_CNO</td><td>6</td></tr> <tr> <td>PS_DOPPLER</td><td>16</td></tr> <tr> <td>SV_CODE_PH_WH</td><td>10</td></tr> <tr> <td>SV_CODE_PH_FR</td><td>10</td></tr> <tr> <td>MUL_PATH_IND</td><td>3</td></tr> <tr> <td>PS_RANGE_RMS_ER</td><td>6</td></tr> </tbody> </table> <table data-bbox="1213 1015 1782 1049"> <tbody> <tr> <td>RESERVED</td><td>0 - 7 (as needed)</td></tr> </tbody> </table> <div data-bbox="974 1135 1787 1310" data-label="Text"> <p>SV_CODE_PH_WH - Satellite code phase - whole chips.</p> <p>The mobile station shall set this field to the measured satellite code phase, in units of 1 GPS chip, in the range from 0 to 1022 chips, where increasing binary values of the field signify increasing measured pseudoranges.</p> </div>	Field	Length (bits)	PART_NUM	3	TOTAL_PARTS	3	NUM_PS_RANGES_P	6	TIME_REF	24	TIME_REF_SRC	2	OFFSET_INCL	1	REF_PN	0 or 9	MOB_SYS_T_OFFSET	0 or 14	SV_PRN_NUM	6	SV_CNO	6	PS_DOPPLER	16	SV_CODE_PH_WH	10	SV_CODE_PH_FR	10	MUL_PATH_IND	3	PS_RANGE_RMS_ER	6	RESERVED	0 - 7 (as needed)
Field	Length (bits)																																		
PART_NUM	3																																		
TOTAL_PARTS	3																																		
NUM_PS_RANGES_P	6																																		
TIME_REF	24																																		
TIME_REF_SRC	2																																		
OFFSET_INCL	1																																		
REF_PN	0 or 9																																		
MOB_SYS_T_OFFSET	0 or 14																																		
SV_PRN_NUM	6																																		
SV_CNO	6																																		
PS_DOPPLER	16																																		
SV_CODE_PH_WH	10																																		
SV_CODE_PH_FR	10																																		
MUL_PATH_IND	3																																		
PS_RANGE_RMS_ER	6																																		
RESERVED	0 - 7 (as needed)																																		

The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911
	<p>[Exemplary Sources: http://www.etsi.org/deliver/etsi_ts/125300_125399/125305/11.00.00_60/ts_125305v110000p.pdf; http://ftp.tiaonline.org/tr-45/TR-45.2inactive/Projects/J-STD-036-B-1%20%5BE%5D/J-STD-036-B-1%20%5BE%5D%20v0.1.pdf; http://www.3gpp2.org/public_html/specs/C.S0022-0_v3.0_121203.pdf]</p>
communicating the feature request using the cellular telephone network;	<p>Pantech's phones use the cellular network to communicate the emergency feature requests.</p> <div data-bbox="953 602 1814 704" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>4.1 MS Originated Position Determination for Emergency Services Call (Successful CAS Push - E₅/E₃ Interfaces)</p> </div> <div data-bbox="953 748 1814 935" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>the MS sends an IS-95 Data Burst message (Type = PLD) containing an encapsulated IS-801 message in order to provide or obtain positioning related information from the PDE. Note that step d. may occur as soon as the MS is placed on a traffic channel.</p> <p>e. Upon receipt of the Data Burst message for MS originated position determination, the MSC encapsulates the application layer content (IS-801) in an SMDPP and sends the SMDPP to the Serving MPC.</p> </div> <p>[Exemplary Source: http://ftp.tiaonline.org/tr-45/TR-45.2inactive/Projects/J-STD-036-B-1%20%5BE%5D/J-STD-036-B-1%20%5BE%5D%20v0.1.pdf]</p>
receiving the feature request at a platform;	<p>AT&T, Verizon and U.S. Cellular's servers receive the feature requests from Pantech's phones.</p> <div data-bbox="953 1198 1814 1292" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>4.1 MS Originated Position Determination for Emergency Services Call (Successful CAS Push - E₅/E₃ Interfaces)</p> </div>

The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911
	<div data-bbox="953 269 1814 393" style="border: 1px solid black; padding: 5px;"> <p>f. The MPC relays the received SMDPP to an appropriate PDE. Note: PDE selection by the MPC may be determined by Session Tags contained in the SMS_BearerData. The mechanism used by the MPC for routing SMDPP messages is beyond the scope of this Standard.</p> </div> <p>Positioning requests are received and processed in the network (the "UTRAN" - Universal Terrestrial Radio Access Network).</p> <p>Data from the handset (UE) and one or more base transceiver stations (referred to as Node B's in 3G) are received at a Radio Network Controller (RNC) platform, as described in section 5 of TS 25.305.</p> <p>The RNC in turn interfaces (labelled "lu") to the core network (CN).</p>

The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911
	 <p>Figure 5.1: General arrangement of UE Positioning in UTRAN</p> <p>[Exemplary Sources: http://ftp.tiaonline.org/tr-45/TR-45.2inactive/Projects/J-STD-036-B-1%20%5BE%5D/J-STD-036-B-1%20%5BE%5D%20v0.1.pdf; http://www.etsi.org/deliver/etsi_ts/125300_125399/125305/11.00.00_60/ts_125305v110000p.pdf]</p>
translating the data digits to determine information generated by the sensor; and	<p>AT&T, Verizon and U.S. Cellular's servers translate the GPS data to determine the location of the Pantech phone.</p> <div data-bbox="953 1333 1814 1409" style="border: 1px solid black; padding: 5px;"> <p>4.1 MS Originated Position Determination for Emergency Services Call (Successful CAS Push - E₅/E₃ Interfaces)</p> </div>

The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911
	<div data-bbox="953 310 1814 380" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>o. The PDE uses the received information to determine the MS's position. The PDE sends the POSINFO to the MPC in the GPOSDIR.</p> </div> <div data-bbox="953 423 1814 574" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>For this document, position means a point on earth that can be described by coordinates, such as latitude and longitude. Location in this document is an area. Location may be the area served by a VLR, the area served by an MSC, a paging or location area, the area covered by a given cell site or sector, the area served by a particular emergency services agency, or the area associated with a particular street address. This definition may be at odds with other forum, but it is consistent with the usage of terms used in wireless mobility management protocols such as TIA/EIA-41 and GSM.</p> </div> <p>Section 5.2.1.1.1 of TS 25.305 describes how the Radio Network Controller (RNC) platform performs a "position calculation" using, inter alia, the data provided by the UE in the A-GPS data digits.</p> <p>This calculation translates the data digits into useful location data.</p>

The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911
	<div data-bbox="953 272 1814 954" style="border: 1px solid black; padding: 10px;"> <p>5.2.1.1.1 RNC Centric Mode</p> <p>In RNC centric mode the SRNC provides the following functionality:</p> <ul style="list-style-type: none"> - request of information from other RNC: The SRNC may request information regarding UE Positioning from other RNCs; - flow control of positioning requests: If several simultaneous positioning requests are present within one SRNC, the SRNC co-ordinates the positioning requests taking into account priority of the requests (e.g. for Emergency Clients); - positioning method selection: The positioning method selection is based on the location request, QoS, capabilities of UE Positioning elements and UE positioning capabilities; - position calculation: The SRNC may calculate the position of a UE and may also support conversion of the position estimate between different geographic reference systems. In case RNC estimates the UE position, it is also responsible to estimate the accuracy of the position estimate. This accuracy estimate should include, for example, the effect of geometric dilution of precision (GDOP), the capabilities of the signal measuring hardware, the effects of multipath propagation and the effects of timing and synchronisation unknowns. The accuracy should be returned as a measure of distance in the same units as the position estimate. The accuracy zone may be reported as the axis and orientation of an ellipse surrounding the position estimate. If available, the positioning method (or the list of the methods) used to obtain the position estimate may also be returned to the CN with the position information. If the CN has requested an accuracy for the position estimate, the Location response shall include an indication whether the position estimate satisfies the requested accuracy or not. - provide UE Positioning assistance data: The SRNC may provide assistance data in the support of the various positioning methods; - Overall UE Positioning coordination and control: If both an SAS and an SRNC with SMLC internal functionality are available, the SRNC is responsible for the overall coordination and control of UE Positioning. For example, although the SAS has a position calculation function, the SRNC may also have a position calculation function. The SRNC is responsible for managing the co-ordination and control of these multiple resources. </div> <p>[Exemplary Sources: http://ftp.tiaonline.org/tr-45/TR-45.2inactive/Projects/J-STD-036-B-1%20%5BE%5D/J-STD-036-B-1%20%5BE%5D%20v0.1.pdf; http://www.etsi.org/deliver/etsi_ts/125300_125399/125305/11.00.00_60/ts_125305v110000p.pdf]</p>
<p>storing information generated by the sensor for access by a host operating external to the cellular telephone network.</p>	<p>AT&T, Verizon and U.S. Cellular's servers store the GPS information generated by the Pantech phones for access by the relevant emergency services centers. The emergency services centers are external to the cellular telephone network. AT&T, Verizon and U.S. Cellular store the GPS information from Pantech's phones so the Operator assigned to the incident may access the data to properly dispatch emergency services.</p>

The '455 Patent	Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911
	<div data-bbox="953 269 1814 570"> <p style="text-align: right;">NENA Standard Data Formats for ALI Data Exchange & GIS Mapping NENA 02-010, Version 8.2, June 10, 2009</p> <hr/> <p style="text-align: center;">EXHIBIT 14</p> <p style="text-align: center;">VERSION 3.1 WIRELESS DATA EXCHANGE</p> <p>4.1.4 Dynamic Updates of the ALI Database</p> </div> <div data-bbox="953 578 1814 837"> <p>Wireless solutions require information to be provided to the PSAP at the time a 9-1-1 call is in progress from a wireless device. This information is dynamic since it cannot be determined or stored in the ALI database prior to the 9-1-1 calls. Information such as the wireless caller's Call Back Number, Latitude, and Longitude information is only known at the time the 9-1-1 call is placed and must be dynamically populated in the ALI database. Wireless Service Providers must generate a real-time transaction to the ALI System that contains this dynamic information. The ALI database is updated with this information prior to the PSAP equipment issuing an ALI request (bid) to the ALI database. When the ALI system receives the request from the PSAP, the dynamically updated database record is retrieved and used to build the ALI data that will be transmitted back to the PSAP, with the Call Back Number, Latitude, Longitude, and other dynamically updated information.</p> </div> <p>Section 6 of 3GPP TS 23.271 shows the Iu interface from the UMTS cellular network into the core network, along with parallel interfaces for other cellular technologies (GSM and LTE) providing equivalent location functionality.</p> <p>Ultimately the location information is supplied to an "external LCS client" (LoCation Services client), which is external to the UTRAN (and GSM, and LTE) cellular telephone network.</p>

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Pantech's Phones and AT&T, Verizon, and U.S. Cellular's Implementation of E-911

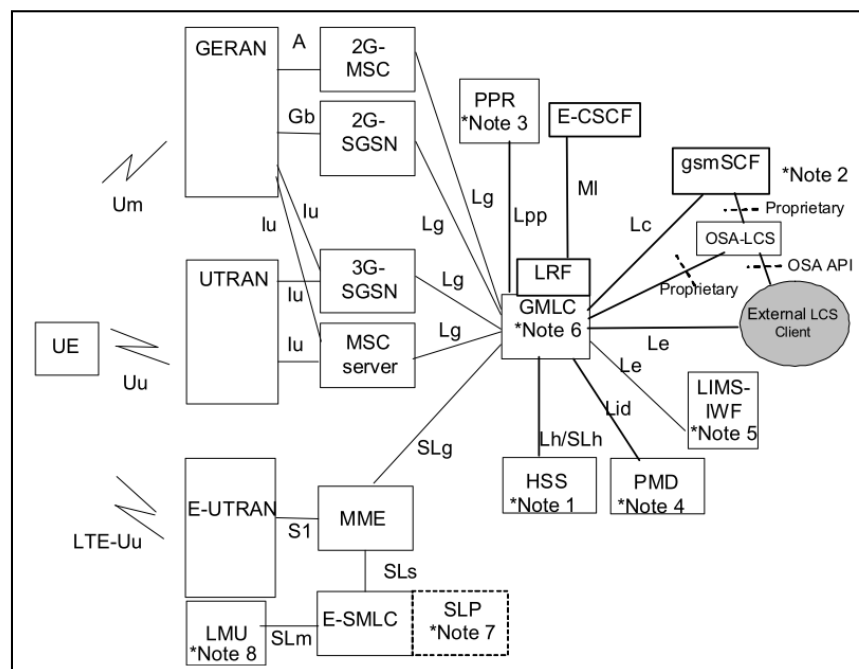





Figure 6.1-1: General arrangement of LCS

[Exemplary Sources: <http://ebookbrowse.net/nena-02-010-v9-data-formats-for-ali-msag-gis-pdf-d323690922>;
http://www.etsi.org/deliver/etsi_ts/123200_123299/123271/07.09.00_60/ts_123271v070900p.pdf]




The '295 Patent	Pantech's Smart Phones and E-911														
Claim 38															
<p>38. A messaging unit for data messaging using a cellular telephone network by issuing a feature request, comprising:</p> <p>a sensor operable to generate information;</p>	<p>Pantech sells smart phones capable of data messaging using cellular telephone networks by issuing feature requests. For example, Pantech's smart phones are capable of being used for data messaging with Enhanced 911 (or E-911) services by issuing feature requests. Pantech's phones generate the feature requests, which contain codes indicating an emergency and include data representing position information.</p> <p>Pantech's phones generate position information using GPS receivers. A GPS receiver is a sensor.</p> <div data-bbox="949 714 1814 1166" data-label="Table"> <table> <tr> <th colspan="2">TECHNOLOGY</th></tr> <tr> <td>GSM:</td><td>850, 900, 1800, 1900 MHz</td></tr> <tr> <td>UMTS:</td><td>850, 1900, 2100 MHz</td></tr> <tr> <td>FDD LTE:</td><td>700 (band 17), 1700/2100 (band 4) MHz</td></tr> <tr> <td>Data:</td><td> LTE, HSPA (unspecified), UMTS, EDGE, GPRS</td></tr> <tr> <td>Positioning:</td><td>A-GPS</td></tr> <tr> <td>Navigation:</td><td>Turn-by-turn navigation</td></tr> </table> </div> <p>The Pantech Flexhandset is operable to provide data messaging using 2G, 3G and 4G cellular networks.</p>	TECHNOLOGY		GSM:	850, 900, 1800, 1900 MHz	UMTS:	850, 1900, 2100 MHz	FDD LTE:	700 (band 17), 1700/2100 (band 4) MHz	Data:	 LTE, HSPA (unspecified), UMTS, EDGE, GPRS	Positioning:	A-GPS	Navigation:	Turn-by-turn navigation
TECHNOLOGY															
GSM:	850, 900, 1800, 1900 MHz														
UMTS:	850, 1900, 2100 MHz														
FDD LTE:	700 (band 17), 1700/2100 (band 4) MHz														
Data:	 LTE, HSPA (unspecified), UMTS, EDGE, GPRS														
Positioning:	A-GPS														
Navigation:	Turn-by-turn navigation														

The '295 Patent	Pantech's Smart Phones and E-911																
	<p>The Pantech Flex handset supports 3G operation and is thus compliant with the 3GPP standards defining the associated access network (UTRAN). Description of location-based functions of the handset are defined, inter alia, in 3GPP TS 25.305.</p> <div><div>PANTECH</div><table><tr><td colspan="3">For AT&T</td></tr><tr><td rowspan="6">GENERAL</td><td>2G Network</td><td>GSM 850 / 900 / 1800 / 1900</td></tr><tr><td>3G Network</td><td>HSDPA 850 / 1900 / 2100</td></tr><tr><td>4G Network</td><td>LTE 700 MHz Class 17 / 1700 / 2100</td></tr><tr><td>SIM</td><td>Micro-SIM</td></tr><tr><td>Announced</td><td>2012, September</td></tr><tr><td>Status</td><td>Available. Released 2012, September</td></tr></table></div> <p>[Exemplary Source: http://www.phonearena.com/phones/Pantech-Flex_id7413; http://www.gsmarena.com/pantech_flex_p8010-5008.php]</p>	For AT&T			GENERAL	2G Network	GSM 850 / 900 / 1800 / 1900	3G Network	HSDPA 850 / 1900 / 2100	4G Network	LTE 700 MHz Class 17 / 1700 / 2100	SIM	Micro-SIM	Announced	2012, September	Status	Available. Released 2012, September
For AT&T																	
GENERAL	2G Network	GSM 850 / 900 / 1800 / 1900															
	3G Network	HSDPA 850 / 1900 / 2100															
	4G Network	LTE 700 MHz Class 17 / 1700 / 2100															
	SIM	Micro-SIM															
	Announced	2012, September															
	Status	Available. Released 2012, September															
a processor coupled to the sensor and operable to receive information generated by the sensor, the processor further operable to generate a feature request having data digits that represent information generated by the sensor; and	<p>Pantech's smart phones include processors coupled to the GPS receivers that are operable to receive information generated by them. In order to comply with the e-911 standard, during a 911-emergency event, Pantech's phones are operable to generate feature requests with codes indicating the emergency and include data representing position information, such as GPS coordinates.</p> <p>The Pantech phone incorporates a Qualcomm Snapdragon processor which implements the logical functionality of the handset in order to meet the various cellular standards with which the device complies.</p> <div><table><tr><td rowspan="2">FEATURES</td><td>OS</td><td>Android OS, v4.0.4 (Ice Cream Sandwich), upgradable to v4.1.2 (Jelly Bean)</td></tr><tr><td>Chipset</td><td>Qualcomm MSM8960 Snapdragon</td></tr></table></div>	FEATURES	OS	Android OS, v4.0.4 (Ice Cream Sandwich), upgradable to v4.1.2 (Jelly Bean)	Chipset	Qualcomm MSM8960 Snapdragon											
FEATURES	OS		Android OS, v4.0.4 (Ice Cream Sandwich), upgradable to v4.1.2 (Jelly Bean)														
	Chipset	Qualcomm MSM8960 Snapdragon															

The '295 Patent	Pantech's Smart Phones and E-911																																				
	<p>Table 10.2 of TS25.305 summarizes the two alternative types of request (identified as UE-assisted and UE-based) and associated data digits arising from the GPS sensor that are sent to the cellular network.</p> <p>Pantech's handsets send data identified as, and corresponding to , either:</p> <ul style="list-style-type: none">- position and velocity estimates if available in full UE-based operation; or- satellite, chip, and other data in UE-Assisted operation. <div><p>The information that may be signalled from UE to the network is listed in table 10.2.</p><table><caption>Table 10.2: Information that may be transferred from UE to the network</caption><tr><th>Information</th><th>UE-assisted</th><th>UE-based</th></tr><tr><td>reference time for GPS (T_{UE-GPS}) (specified in [15] and [16])</td><td>Yes</td><td>Yes</td></tr><tr><td>serving cell information</td><td>No</td><td>Yes</td></tr><tr><td>Latitude/Longitude/Altitude/Error ellipse</td><td>No</td><td>Yes</td></tr><tr><td>velocity estimate in the UE</td><td>No</td><td>Yes</td></tr><tr><td>satellite ID for which measurement data is valid</td><td>Yes</td><td>No</td></tr><tr><td>Whole/Fractional chips for information about the code-phase measurement</td><td>Yes</td><td>No</td></tr><tr><td>C/N₀ of the received signal from the particular satellite used in the measurements</td><td>Yes</td><td>No</td></tr><tr><td>doppler frequency measured by the UE for the particular satellite</td><td>Yes</td><td>No</td></tr><tr><td>pseudorange RMS error</td><td>Yes</td><td>No</td></tr><tr><td>multipath indicator</td><td>Yes</td><td>No</td></tr><tr><td>number of Pseudoranges</td><td>Yes</td><td>No</td></tr></table></div> <p>[Exemplary Sources: http://www.etsi.org/deliver/etsi_ts/125300_125399/125305/11.00.00_60/ts_125305v110000p.pdf; http://www.gsmarena.com/pantech_flex_p8010-5008.php]</p>	Information	UE-assisted	UE-based	reference time for GPS (T_{UE-GPS}) (specified in [15] and [16])	Yes	Yes	serving cell information	No	Yes	Latitude/Longitude/Altitude/Error ellipse	No	Yes	velocity estimate in the UE	No	Yes	satellite ID for which measurement data is valid	Yes	No	Whole/Fractional chips for information about the code-phase measurement	Yes	No	C/N ₀ of the received signal from the particular satellite used in the measurements	Yes	No	doppler frequency measured by the UE for the particular satellite	Yes	No	pseudorange RMS error	Yes	No	multipath indicator	Yes	No	number of Pseudoranges	Yes	No
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a cellular transceiver operable to communicate the feature request using the cellular telephone network without opening a voice channel.	Pantech's smart phones contain cellular transceivers operable to communicate the feature requests using the cellular telephone network without opening a voice																																				

The '295 Patent	Pantech's Smart Phones and E-911
	<p>channel. For example, Pantech's Flex includes a cellular transceiver operable to communicate via 2G, 3G, and 4G networks.</p> <p>In 3GPP, positioning requests are received and processed in the network (the "UTRAN" - Universal Terrestrial Radio Access Network) without a voice channel being opened.</p> <p>Data from the handset (UE) and one or more base transceiver stations (referred to as Node B's in 3G) are received at a Radio Network Controller (RNC) platform, as described in section 5 of TS 25.305. The RNC in turn interfaces (labelled "lu") to the core network (CN). All of these processes involve data transfer and none requires use of a voice channel.</p>

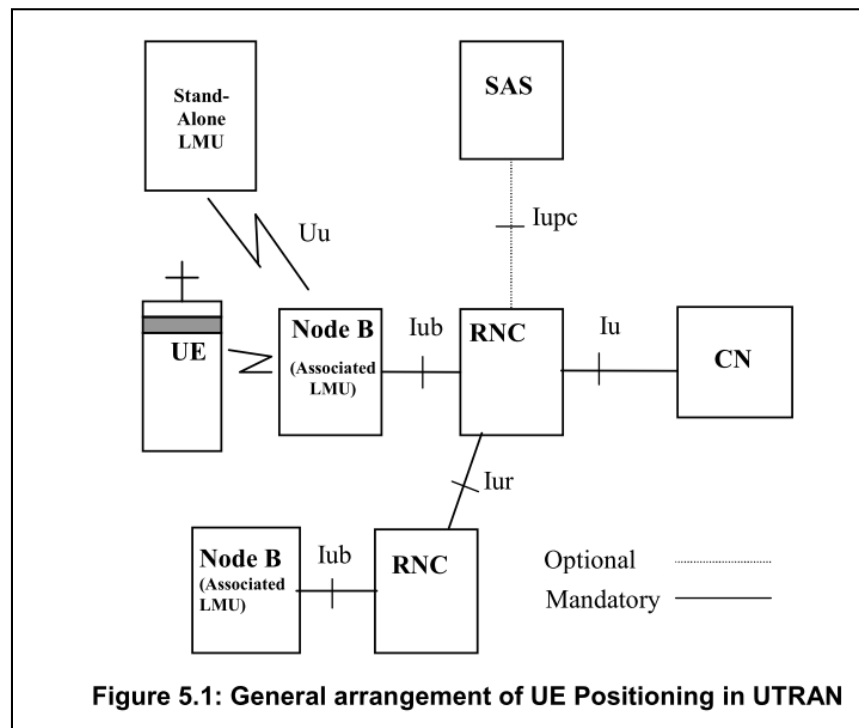
The '295 Patent	Pantech's Smart Phones and E-911
	<div data-bbox="953 269 1814 992"> <p>Figure 5.1: General arrangement of UE Positioning in UTRAN</p> </div> <p>[Exemplary Source: http://www.etsi.org/deliver/etsi_ts/125300_125399/125305/11.00.00_60/ts_125305v110000p.pdf] </p>

The '449 Patent	Pantech's Smart Phones and E-911												
Claim 38													
<p>38. A messaging unit for data messaging using a cellular telephone network, comprising:</p> <p>a sensor operable to generate information;</p>	<p>Pantech sells smart phones capable of data messaging using cellular telephone networks by issuing feature requests. For example, Pantech's smart phones are capable of being used for data messaging with Enhanced 911 (or E-911) services by issuing feature requests. Pantech's phones generate the feature requests, which contain codes indicating an emergency and include data representing position information.</p> <p>Pantech's phones generate position information using GPS receivers. A GPS receiver is a sensor.</p> <div data-bbox="951 719 1814 1169"> <p>TECHNOLOGY</p> <table> <tr> <td>GSM:</td><td>850, 900, 1800, 1900 MHz</td></tr> <tr> <td>UMTS:</td><td>850, 1900, 2100 MHz</td></tr> <tr> <td>FDD LTE:</td><td>700 (band 17), 1700/2100 (band 4) MHz</td></tr> <tr> <td>Data:</td><td> LTE, HSPA (unspecified), UMTS, EDGE, GPRS</td></tr> <tr> <td>Positioning:</td><td>A-GPS</td></tr> <tr> <td>Navigation:</td><td>Turn-by-turn navigation</td></tr> </table> </div> <p>The Pantech Flex handset is operable to provide data messaging using 2G, 3G and 4G cellular networks.</p>	GSM:	850, 900, 1800, 1900 MHz	UMTS:	850, 1900, 2100 MHz	FDD LTE:	700 (band 17), 1700/2100 (band 4) MHz	Data:	 LTE, HSPA (unspecified), UMTS, EDGE, GPRS	Positioning:	A-GPS	Navigation:	Turn-by-turn navigation
GSM:	850, 900, 1800, 1900 MHz												
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Data:	 LTE, HSPA (unspecified), UMTS, EDGE, GPRS												
Positioning:	A-GPS												
Navigation:	Turn-by-turn navigation												

The '449 Patent	Pantech's Smart Phones and E-911																
	<p>The Pantech Flex handset supports 3G operation and is thus compliant with the 3GPP standards defining the associated access network (UTRAN). Description of location-based functions of the handset are defined, inter alia, in 3GPP TS 25.305.</p> <div><div>PANTECH</div><table><tr><td colspan="3">For AT&T</td></tr><tr><td rowspan="6">GENERAL</td><td>2G Network</td><td>GSM 850 / 900 / 1800 / 1900</td></tr><tr><td>3G Network</td><td>HSDPA 850 / 1900 / 2100</td></tr><tr><td>4G Network</td><td>LTE 700 MHz Class 17 / 1700 / 2100</td></tr><tr><td>SIM</td><td>Micro-SIM</td></tr><tr><td>Announced</td><td>2012, September</td></tr><tr><td>Status</td><td>Available. Released 2012, September</td></tr></table></div> <p>[Exemplary Source: http://www.phonearena.com/phones/Pantech-Flex_id7413; http://www.gsmarena.com/pantech_flex_p8010-5008.php]</p>	For AT&T			GENERAL	2G Network	GSM 850 / 900 / 1800 / 1900	3G Network	HSDPA 850 / 1900 / 2100	4G Network	LTE 700 MHz Class 17 / 1700 / 2100	SIM	Micro-SIM	Announced	2012, September	Status	Available. Released 2012, September
For AT&T																	
GENERAL	2G Network	GSM 850 / 900 / 1800 / 1900															
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	4G Network	LTE 700 MHz Class 17 / 1700 / 2100															
	SIM	Micro-SIM															
	Announced	2012, September															
	Status	Available. Released 2012, September															
a processor coupled to the sensor and operable to receive information generated by the sensor, the processor further operable to generate a feature request having data digits that represent information generated by the sensor; and	<p>AT&T, Verizon and U.S. Cellular use the E-911 standard for wireless enhanced Emergency Calls. In order to comply with that standard, during a 911-emergency event, AT&T, Verizon and U.S. Cellular use Pantech's phones to generate feature requests with codes indicating the emergency and include data representing position information, such as GPS coordinates.</p> <p>The Pantech phone incorporates a Qualcomm Snapdragon processor which implements the logical functionality of the handset in order to meet the various cellular standards with which the device complies.</p> <div><table><tr><td rowspan="2">FEATURES</td><td>OS</td><td>Android OS, v4.0.4 (Ice Cream Sandwich), upgradable to v4.1.2 (Jelly Bean)</td></tr><tr><td>Chipset</td><td>Qualcomm MSM8960 Snapdragon</td></tr></table></div>	FEATURES	OS	Android OS, v4.0.4 (Ice Cream Sandwich), upgradable to v4.1.2 (Jelly Bean)	Chipset	Qualcomm MSM8960 Snapdragon											
FEATURES	OS		Android OS, v4.0.4 (Ice Cream Sandwich), upgradable to v4.1.2 (Jelly Bean)														
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The '449 Patent	Pantech's Smart Phones and E-911																																				
	<p>Table 10.2 of TS25.305 summarizes the two alternative types of request (identified as UE-assisted and UE-based) and associated data digits arising from the GPS sensor that are sent to the cellular network.</p> <p>Pantech's handsets send data identified as, and corresponding to , either:</p> <ul style="list-style-type: none">- position and velocity estimates if available in full UE-based operation; or- satellite, chip, and other data in UE-Assisted operation. <div><p>The information that may be signalled from UE to the network is listed in table 10.2.</p><p>Table 10.2: Information that may be transferred from UE to the network</p><table><tr><th>Information</th><th>UE-assisted</th><th>UE-based</th></tr><tr><td>reference time for GPS (T_{UE-GPS}) (specified in [15] and [16])</td><td>Yes</td><td>Yes</td></tr><tr><td>serving cell information</td><td>No</td><td>Yes</td></tr><tr><td>Latitude/Longitude/Altitude/Error ellipse</td><td>No</td><td>Yes</td></tr><tr><td>velocity estimate in the UE</td><td>No</td><td>Yes</td></tr><tr><td>satellite ID for which measurement data is valid</td><td>Yes</td><td>No</td></tr><tr><td>Whole/Fractional chips for information about the code-phase measurement</td><td>Yes</td><td>No</td></tr><tr><td>C/N₀ of the received signal from the particular satellite used in the measurements</td><td>Yes</td><td>No</td></tr><tr><td>doppler frequency measured by the UE for the particular satellite</td><td>Yes</td><td>No</td></tr><tr><td>pseudorange RMS error</td><td>Yes</td><td>No</td></tr><tr><td>multipath indicator</td><td>Yes</td><td>No</td></tr><tr><td>number of Pseudoranges</td><td>Yes</td><td>No</td></tr></table></div> <p>[Exemplary Sources: http://www.etsi.org/deliver/etsi_ts/125300_125399/125305/11.00.00_60/ts_125305v110000p.pdf; http://www.gsmarena.com/pantech_flex_p8010-5008.php]</p>	Information	UE-assisted	UE-based	reference time for GPS (T_{UE-GPS}) (specified in [15] and [16])	Yes	Yes	serving cell information	No	Yes	Latitude/Longitude/Altitude/Error ellipse	No	Yes	velocity estimate in the UE	No	Yes	satellite ID for which measurement data is valid	Yes	No	Whole/Fractional chips for information about the code-phase measurement	Yes	No	C/N ₀ of the received signal from the particular satellite used in the measurements	Yes	No	doppler frequency measured by the UE for the particular satellite	Yes	No	pseudorange RMS error	Yes	No	multipath indicator	Yes	No	number of Pseudoranges	Yes	No
Information	UE-assisted	UE-based																																			
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The '449 Patent	Pantech's Smart Phones and E-911
	<p>channel. For example, Pantech's Flex includes a cellular transceiver operable to communicate via 2G, 3G, and 4G networks.</p> <p>In 3GPP, positioning requests are received and processed in the network (the "UTRAN" - Universal Terrestrial Radio Access Network) without a voice channel being opened.</p> <p>Data from the handset (UE) and one or more base transceiver stations (referred to as Node B's in 3G) are received at a Radio Network Controller (RNC) platform, as described in section 5 of TS 25.305. The RNC in turn interfaces (labelled "lu") to the core network (CN). All of these processes involve use of the 3GPP data channel.</p>

The '449 Patent**Pantech's Smart Phones and E-911**

[Exemplary Source:

http://www.etsi.org/deliver/etsi_ts/125300_125399/125305/11.00.00_60/ts_125305v110000p.pdf]

The '172 Patent	Alcatel's LTE Smart Phones										
Claim 1											
1. A communication device, comprising: an input device operable to generate a request specifying one of an enhanced service and a voice service;	<p>Pantech's Flex is a communication device that includes an input device operable to generate a request specifying one of an enhanced service and a voice service.</p> <p>Pantech's Flex supports 2G, 3G /UMTS, 4G/HSDPA+ and 4G /LTE networks, including operation over GPRS (2G) and LTE (4G) networks.</p> <div><div></div><table><tr><td colspan="3">For AT&T</td></tr><tr><td rowspan="3">GENERAL</td><td>2G Network</td><td>GSM 850 / 900 / 1800 / 1900</td></tr><tr><td>3G Network</td><td>HSDPA 850 / 1900 / 2100</td></tr><tr><td>4G Network</td><td>LTE 700 MHz Class 17 / 1700 / 2100</td></tr></table></div>	For AT&T			GENERAL	2G Network	GSM 850 / 900 / 1800 / 1900	3G Network	HSDPA 850 / 1900 / 2100	4G Network	LTE 700 MHz Class 17 / 1700 / 2100
For AT&T											
GENERAL	2G Network	GSM 850 / 900 / 1800 / 1900									
	3G Network	HSDPA 850 / 1900 / 2100									
	4G Network	LTE 700 MHz Class 17 / 1700 / 2100									

Wireless Technology

4G-LTE	Band 4 and 17
4G	HSPA+ with enhanced backhaul
UMTS/HSPA+	850/1900/2100MHz
GSM/GPRS/EDGE	850/900/1800/1900MHz
Wi-Fi® connectivity	802.11 a/b/g/n
Bluetooth® technology	v4.0
FOTA capable - upgrade Firmware Over The Air	✓

ETSI standard 3GPP TS 123.401 describes the enhancements for LTE networks (Evolved Universal Terrestrial Radio Access Network / E-UTRAN) over and above those for the legacy networks, which were based on GSM networks (GSM Edge Radio Access Network – “GERAN”).

LTE introduces a new temporary subscriber identity – GUTI (Globally Unique Temporary Identifier) – in addition to the TMSI (Temporary Mobile Station Identity) of GSM for voice services and P-TMSI of GPRS.

The transceiver (UE) chooses which identity to use in the next update procedure according to prevailing network conditions and signaling messages received from the network.

	<p>Section 4.3.5.6 of ETSI TS 123.401 describes the selection process of this "Temporary Identity used in Next update" (TIN).</p> <p>These processes are explicitly stated as being mandatory for all devices, such as Pantech's Flex, which support GERAN operation.</p>
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4.3.5.6 Idle mode signalling reduction function

The Idle mode Signalling Reduction (ISR) function provides a mechanism to limit signalling during inter-RAT cell-reselection in idle mode (ECM-IDLE, PMM-IDLE, GPRS STANDBY states).

NOTE 1: The Idle mode Signalling Reduction function is mandatory for E-UTRAN UEs that support GERAN and/or UTRAN and optional for core network. The UE's ISR capability in the UE Core Network Capability element is for test purpose.

The MME/SGSN activates ISR only if the Serving GW supports the ISR. How MME/SGSN determines a Serving GW supports ISR is implementation dependent.

ISR shall be activated by decision of the CN nodes and shall be explicitly signalled to the UE as "ISR activated" in the RAU and TAU Accept messages. The UE may have valid MM parameters both from MME and from SGSN. The "Temporary Identity used in Next update" (TIN) is a parameter of the UE's MM context, which identifies the UE identity that the UE shall indicate in the next RAU Request, TAU Request or Attach Request message. The TIN also identifies the status of ISR activation in the UE.

ETSI

3GPP TS 23.401 version 11.3.0 Release 11

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ETSI TS 123 401 V11.3.0 (2012-11)

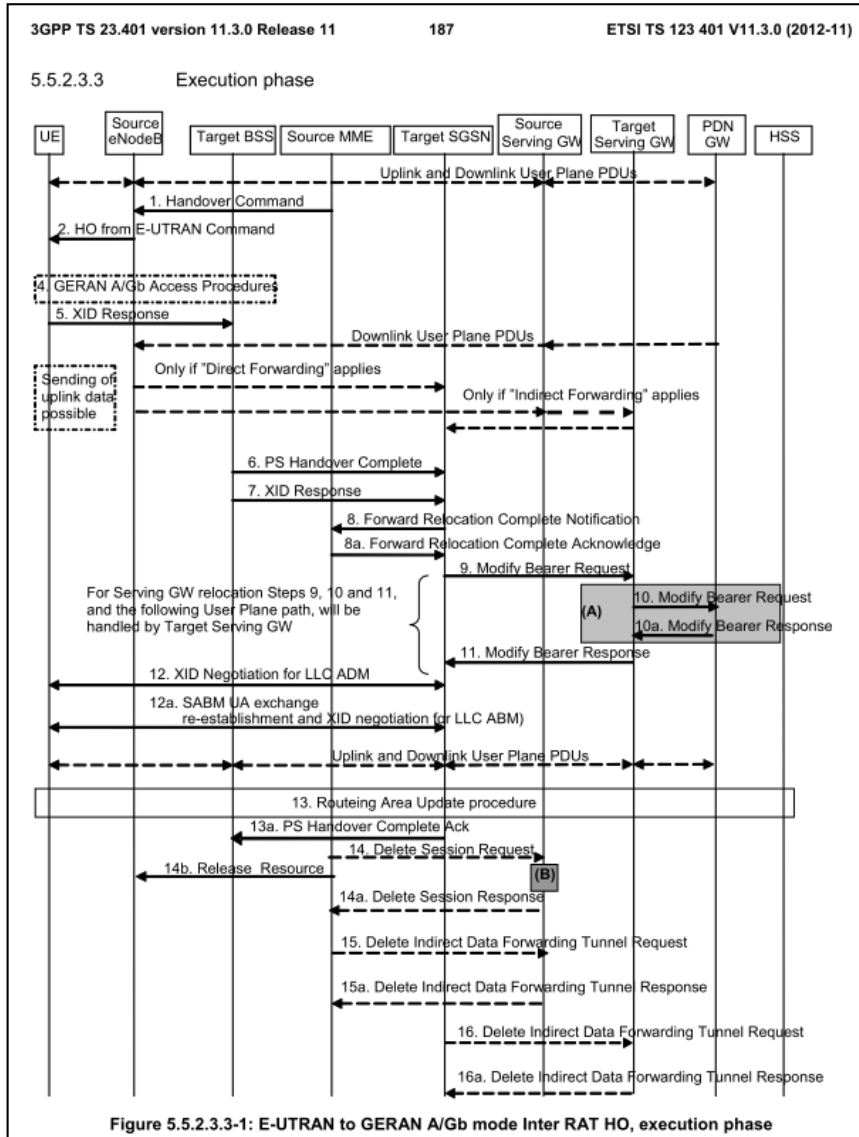
The TIN can take one of the three values, "P-TMSI", "GUTI" or "RAT-related TMSI". The UE shall set the TIN when receiving an Attach Accept, a TAU Accept or RAU Accept message according to the rules in table 4.3.5.6-1.

Table 4.3.5.6-1: Setting of the TIN

Message received by UE	Current TIN value stored by UE	TIN value to be set by the UE when receiving message
Attach Accept via E-UTRAN (never indicates "ISR Activated")	Any value	GUTI
Attach Accept via GERAN/UTRAN (never indicates "ISR Activated")	Any value	P-TMSI
TAU Accept not indicating "ISR Activated"	Any value	GUTI
TAU Accept indicating "ISR Activated"	GUTI	GUTI
RAU Accept not indicating "ISR Activated"	P-TMSI or RAT-related TMSI	RAT-related TMSI
RAU Accept indicating "ISR Activated"	Any value	P-TMSI
	P-TMSI	P-TMSI
	GUTI or RAT-related TMSI	RAT-related TMSI

[Exemplary Sources: <https://www.att.com/shop/wireless/devices/pantech/flex-gray.html?tgccParam=1#fbid=f5n7tMpbITx>;
http://www.gsmarena.com/pantech_flex_p8010-5008.php;

	http://www.etsi.org/deliver/etsi_ts/123400_123499/123401/11.03.00_60/ts_123401v110300p.pdf
a memory operable to store a first number assignment module associated with the enhanced service and a second number assignment module associated with the voice service;	<p>Pantech's smart phones use computer memory, such as RAM and ROM. For example, the Pantech Flex has 8GB of memory. Pantech's smart phones also use SIM cards which incorporate a memory operable to store a first number assignment module associated with an enhanced service and a second number assignment module associated with a voice service.</p> <div data-bbox="917 535 1770 649" data-label="Image"> </div> <p>The temporary identifiers are stored in the Flex smartphone transceiver (UE) and may be updated by the various networks from time to time.</p> <p>The GUTI comprises a first number assignment module associated with a E-UTRAN (LTE) enhanced service network. The (P-)TMSI comprises a second number assignment module associated with a GERAN (GSM) voice service.</p>



	[Exemplary Sources: http://www.gsmarena.com/pantech_flex_p8010-5008.php ; http://www.etsi.org/deliver/etsi_ts/123400_123499/123401/11.03.00_60/ts_123401v110300p.pdf]																					
a processor coupled to the input device and operable to select the first number assignment module if the request specifies the enhanced service, the processor operable to select the second number assignment module if the request specifies the voice service; and	<p>Pantech’s smart phones have a processor coupled to the input device of the phone and is operable to select a first number assignment module if the request is for an enhanced service or operable to select the second number assignment module if the request is for voice service. Pantech’s Flex has a Qualcomm processor.</p> <div><div>Chipset</div><div>Qualcomm MSM8960 Snapdragon</div></div> <p>Table 4.3.5.6-1 shows, inter alia, the situation where attachment to the first, E-UTRAN, network is desired and the GUTI (first number assignment module) is selected as the next temporary identifier (TIN) to use.</p> <div><div>3GPP TS 23.401 version 11.3.0 Release 1124ETSI TS 123 401 V11.3.0 (2012-11)</div><p>The TIN can take one of the three values, "P-TMSI", "GUTI" or "RAT-related TMSI". The UE shall set the TIN when receiving an Attach Accept, a TAU Accept or RAU Accept message according to the rules in table 4.3.5.6-1.</p><p>Table 4.3.5.6-1: Setting of the TIN</p><table><tr><th>Message received by UE</th><th>Current TIN value stored by UE</th><th>TIN value to be set by the UE when receiving message</th></tr><tr><td>Attach Accept via E-UTRAN (never indicates "ISR Activated")</td><td>Any value</td><td>GUTI</td></tr><tr><td>Attach Accept via GERAN/UTRAN (never indicates "ISR Activated")</td><td>Any value</td><td>P-TMSI</td></tr><tr><td>TAU Accept not indicating "ISR Activated"</td><td>Any value</td><td>GUTI</td></tr><tr><td>TAU Accept indicating "ISR Activated"</td><td>GUTI P-TMSI or RAT-related TMSI</td><td>GUTI RAT-related TMSI</td></tr><tr><td>RAU Accept not indicating "ISR Activated"</td><td>Any value</td><td>P-TMSI</td></tr><tr><td>RAU Accept indicating "ISR Activated"</td><td>P-TMSI GUTI or RAT-related TMSI</td><td>P-TMSI RAT-related TMSI</td></tr></table></div>	Message received by UE	Current TIN value stored by UE	TIN value to be set by the UE when receiving message	Attach Accept via E-UTRAN (never indicates "ISR Activated")	Any value	GUTI	Attach Accept via GERAN/UTRAN (never indicates "ISR Activated")	Any value	P-TMSI	TAU Accept not indicating "ISR Activated"	Any value	GUTI	TAU Accept indicating "ISR Activated"	GUTI P-TMSI or RAT-related TMSI	GUTI RAT-related TMSI	RAU Accept not indicating "ISR Activated"	Any value	P-TMSI	RAU Accept indicating "ISR Activated"	P-TMSI GUTI or RAT-related TMSI	P-TMSI RAT-related TMSI
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TAU Accept indicating "ISR Activated"	GUTI P-TMSI or RAT-related TMSI	GUTI RAT-related TMSI																				
RAU Accept not indicating "ISR Activated"	Any value	P-TMSI																				
RAU Accept indicating "ISR Activated"	P-TMSI GUTI or RAT-related TMSI	P-TMSI RAT-related TMSI																				

Table 4.3.5.6-1 further shows, inter alia, the situation where attachment to the second, GERAN, network is desired and the (P-)TMSI (second number assignment module) is selected as the next temporary identifier (TIN) to use.

3GPP TS 23.401 version 11.3.0 Release 11

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ETSI TS 123 401 V11.3.0 (2012-11)

The TIN can take one of the three values, "P-TMSI", "GUTI" or "RAT-related TMSI". The UE shall set the TIN when receiving an Attach Accept, a TAU Accept or RAU Accept message according to the rules in table 4.3.5.6-1.

Table 4.3.5.6-1: Setting of the TIN

Message received by UE	Current TIN value stored by UE	TIN value to be set by the UE when receiving message
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TAU Accept not indicating "ISR Activated"	Any value	GUTI
TAU Accept indicating "ISR Activated"	GUTI P-TMSI or RAT-related TMSI	GUTI RAT-related TMSI
RAU Accept not indicating "ISR Activated"	Any value	P-TMSI
RAU Accept indicating "ISR Activated"	P-TMSI GUTI or RAT-related TMSI	P-TMSI RAT-related TMSI

[Exemplary Sources: http://www.gsmarena.com/pantech_flex_p8010-5008.php; http://www.etsi.org/deliver/etsi_ts/123400_123499/123401/11.03.00_60/ts_123401v110300p.pdf]

a transceiver coupled to the memory and operable to provide the requested service using the selected number assignment module.

Pantech's smart phones have a cellular transceiver coupled to the memory and operable to provide the requested service using the selected number assignment module.

Once the TIN has been determined, the attach procedure continues and the Sonic LTE smartphone transceiver can access the E-UTRAN or GERAN services respectively using either GUTI or (P-)TMSI.

	[Exemplary Source: http://www.etsi.org/deliver/etsi_ts/123400_123499/123401/11.03.00_60/ts_123401v110300p.pdf]
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